

SPORTSMAN'S
BRITISH
BIRD BOOK



R. LYDEKKER

The background of the entire image is a high-contrast, black and white photograph of tiger fur. The stripes are thick and dark, set against a lighter, textured background of the fur. The pattern is diagonal, running from the top-left towards the bottom-right.

FOR THE PEOPLE
FOR EDUCATION
FOR SCIENCE

LIBRARY
OF
THE AMERICAN MUSEUM
OF
NATURAL HISTORY



9. 82 (42)
Σ

THE SPORTSMAN'S BRITISH BIRD BOOK

*The Specimens from which nearly all the Illustrations in this Volume are taken
were mounted in the Rowland Ward Studios.*

LIBRARY
OF THE
MUSEUM
OF NATURAL HISTORY

59.82 (42)
2

THE SPORTSMAN'S BRITISH BIRD BOOK

By R. LYDEKKER



LONDON
ROWLAND WARD, LIMITED
"THE JUNGLE," 167 PICCADILLY, W.

1908

YERGEN
BY
MURRAY FARRER
SACRED JOURNAL

109. 27073. 10004

TO THE
DUCHESS OF BEDFORD

AN UNTIRING OBSERVER OF BRITISH BIRDS IN THE FIELD

THIS BOOK

IS

BY HER GRACE'S PERMISSION

INSCRIBED

BY THE AUTHOR

PREFACE AND INTRODUCTION

IN this volume it has been my aim to place before the public, and especially the sporting section of the same, a concise work on British Birds which, while accurate and up to date, should be as free as possible from technicalities and as simple and readable as the circumstances of the case permit. In this aim I have been greatly assisted by my friend Mr. W. P. Pycraft (to whom I am also indebted for reading the proofs), who has drawn up the description of each species in such a manner as to admit of its ready identification, while at the same time avoiding all unnecessary details. The wording of these descriptions is, however, in most cases my own work; and in drawing them up the needs of the field-naturalist have been specially borne in mind. The details concerning the colouring of the young of each species (except in the case of the perching birds) form a special feature of the work.

The records of the occurrences of rare visitors to the British Isles are also fuller than in any other work; and in this connection I desire to take the opportunity of expressing my indebtedness to the valuable ornithological journal published by Messrs. Wetherby under the title of *British Birds*.

As regards the technical names of the various species, I have in the main adopted those used by my former teacher, the late Professor Alfred Newton of Cambridge, being convinced that the splitting-up of generic groups, now so much the fashion, is a mistake. In this opinion I am following the views of a valued colleague, the late Dr. W. T. Blanford, as expressed in the volume on birds in the *Fauna of British India*.

The illustrations, which speak for themselves, are absolutely true to nature, having, in the great majority of instances, been photographed under the personal superintendence of Mr. Rowland Ward from specimens mounted at his studios in Piccadilly for this particular purpose. A considerable number of these specimens have been presented by Mr. Ward to the Natural History Museum, where they are exhibited in the British Saloon at the end of the Bird Gallery.

A novel feature is the omission of the names of authorities and observers of the facts recorded in this volume, many of whom are unknown to the general public. This is justified by the circumstance that when a statement has once been published it becomes public property.

In certain books on the same subject it has been attempted to draw a distinction between birds which can properly be regarded as British and those which cannot lay a claim to such a privilege. Any such distinction is, however, manifestly an impossibility, and all the species are accordingly treated in serial order, although such as are mere stragglers are not accorded insets of their own in the text.

The introduction of a certain number of technical terms relating to the plumage, such as wing-coverts, primary and secondary quills, etc., is unavoidable. The meaning of these—as well as of other terms used in scientific ornithology—will, however, be made apparent at a glance by the diagrammatic sketch of the topography of a bird's plumage on page xviii.

In future editions, should such be called for, it will be the special aim of both the publisher and author to keep the work up to date.

R. LYDEKKER.

HARPENDEN LODGE, HERTS,

August 1908.

CONTENTS¹

GAME-BIRDS		PAGE
Capercaillie	1	
Blackcock	4	
Grouse	7	
Ptarmigan	9	
Pheasant	11	
Partridge	13	
Red-legged Partridge	16	
Quail	18	
[Virginian Quail]	20	
Pallas's Sand-Grouse	21	
PIGEONS		
Wood-Pigeon or Ring-Dove	23	
Stock-Dove	25	
Blue-Rock or Rock-Dove	27	
Turtle-Dove	29	
RAIL TRIBE		
Water-Rail	30	
Corn-Crake or Land-Rail	33	
Little Crake	35	
Baillon's Crake	37	
Spotted Crake	38	
Moor-Hen or Water-Hen	40	
Coot	42	
CRANE GROUP		
Crane	44	
Bustard	46	
Little Bustard	49	
[Hubara Bustard]	50	

PLOVER GROUP		PAGE
Stone-Curlew or Thick-knee	50	
Cream-coloured Courser	54	
Pratincole	56	
Turnstone	58	
Plover	60	
[Lesser Golden Plover]	64	
Grey Plover	64	
Lapwing or Peewit	66	
[Sociable Lapwing]	69	
Ringed Plover	69	
[Little Ringed Plover]	72	
Kentish Plover	72	
[Kill-deer Plover]	74	
[Caspian Sand-Plover]	74	
Dotterel	75	
Sea-Pie, or Oyster-Catcher	77	
Stilt	80	
Avocet	81	
Curlew	84	
Whimbrel	86	
[Eskimo Curlew]	87	
Black-tailed Godwit	87	
Bar-tailed Godwit	90	
Red-breasted Godwit	91	
Sandpiper or Summer Snipe	93	
[Spotted Sandpiper]	94	
Green Sandpiper	95	
[Solitary Sandpiper]	96	
Wood-Sandpiper	97	
Redshank	99	
Spotted Redshank	101	
[Marsh Sandpiper]	102	
[Lesser Yellowshank]	103	
[Greater Yellowshank]	103	

¹ The names of species which are only very rare stragglers to the British Isles are enclosed in square brackets.

xi

	PAGE		PAGE
[Great White Heron]	247	Eider-Duck	326
[Little Egret]	248	King-Eider	329
[Buff-backed Heron]	248	Scoter	331
Squacco Heron	249	Velvet-Scoter	333
Night-Heron	250	Surf-Scoter	334
[Little Green Heron]	252	Smew	335
Little Bittern	252	Goosander	338
Bittern	254	Merganser	349
American Bittern	256	[Hooded Merganser]	342
Stork	257		
Black Stork	259	CORMORANT GROUP	
Glossy Ibis	259	Cormorant	343
Spoonbill	261	Shag	347
		Gannet	349
DUCK GROUP			
Whooper Swan	265	FALCON AND EAGLE GROUP	
Bewick's Swan	269	Peregrine Falcon	353
[Trumpeter-Swan]	270	[Lesser Falcon]	357
Mute Swan	270	Hobby	357
Grey Lag Goose	271	Greenland Falcon	359
White-fronted Goose	274	Iceland Falcon	360
Bean-Goose	276	[Norwegian Falcon]	361
Pink-footed Goose	277	Red-footed Falcon	362
[Snow-Goose]	279	Merlin	363
Barnacle Goose	279	Kestrel	366
Brent Goose	281	[Lesser Kestrel]	368
[Red-breasted Goose]	282	Honey-Buzzard	369
[Canada Goose]	283	Goshawk	372
Mallard or Wild Duck	283	[American Goshawk]	374
Gadwall	286	Sparrow-Hawk	374
Teal	288	Buzzard	377
[Green-winged Teal]	291	Rough-legged Buzzard	380
Wigeon	291	Hen-Harrier	382
[American Wigeon]	294	Montagu's Harrier	386
Pintail	294	Marsh-Harrier	387
Garganey	297	Kite	389
Shoveller	300	[Black Kite]	392
Sheldrake	303	[Black-winged Kite]	392
Ruddy Sheldrake	306	[Swallow-tailed Kite]	392
Red-crested Pochard	309	White-tailed Eagle	392
Pochard	311	Eagle	394
White-eyed Pochard	314	[Spotted Eagle]	396
[Eastern Pochard]	316	[Griffon-Vulture]	396
Scaup-Duck	316	[Scavenger-Vulture]	396
Tufted Duck	319	Osprey	397
Golden-eye	321		
[Buffle-headed Duck]	324	OWLS	
Long-tailed Duck	324	Barn-Owl	400
[Harlequin-Duck]	326	Long-eared Owl	404

	PAGE		PAGE
Short-eared Owl	407	Black Redstart	471
Tawny Owl	408	Wheatear	471
Tengmalm's Owl	410	[Isabelline Wheatear]	473
Eagle-Owl	412	[Black-eared Wheatear]	473
Snowy Owl	414	[Black-throated Wheatear]	474
[Hawk-Owl]	416	[Desert-Wheatear]	474
Scops Owl	416	Whinchat	474
Little Owl	418	Stonechat	476
		[Eastern Stonechat]	477
		[Bluebird]	477
		Hedge-Sparrow	477
Cuckoo	420	[Alpine Hedge-Sparrow]	479
[Great Spotted Cuckoo]	425	Spotted Flycatcher	479
[Yellow-billed Cuckoo]	425	Pied Flycatcher	481
[Black-billed Cuckoo]	425	[Red-breasted Flycatcher]	483
Nightjar	426	Swallow	483
[Red-necked Nightjar]	428	[Red-rumped Swallow]	486
[Egyptian Nightjar]	428	Sand-Martin	486
Swift	428	Martin	488
Alpine Swift	431	Whitethroat	489
[Needle-tailed Swift]	432	Lesser Whitethroat	491
Roller	432	[Barred Warbler]	492
Bee-eater	434	[Orpheus Warbler]	493
Kingfisher	436	[Sub-alpine Warbler]	493
Hoopoe	439	Blackcap	493
Green Woodpecker	441	Garden-Warbler	495
Great Spotted Woodpecker	444	Dartford Warbler	496
Lesser Spotted Woodpecker	446	[Sardinian Warbler]	497
Wryneck	448	[Rufous Warbler]	498
		[Grey-backed Warbler]	498
		Wood-Wren	498
		Willow-Wren	500
		Chiff-Chaff	501
Thrush	450	[Siberian Chiff-Chaff]	502
Mistle-Thrush	453	[Yellow-browed Warbler]	502
Redwing	454	[Pallas's Willow-Wren]	502
Fieldfare	456	[Radde's Warbler]	503
[American Robin]	457	[Blyth's Willow-Wren]	503
Blackbird	457	[Tree-Warbler]	503
Ring-Ouzel	459	[Western Tree-Warbler]	504
[Siberian Black-throated Thrush]	461	Sedge-Bird	504
[Siberian Ground-Thrush]	461	[Greater Reed-Warbler]	506
White's Thrush	461	Reed-Wren	506
[Dusky Thrush]	462	Marsh-Warbler	507
[Rock-Thrush]	462	Grasshopper-Warbler	509
Nightingale	463	[Cetti's Warbler]	510
[Eastern Nightingale]	465	Savi's Warbler	510
Redbreast	465	Golden-crested Wren	511
Bluethroat	467	Fire-crested Wren	513
[Rubythroat]	469	Water-Ouzel	513
Redstart	469		

CONTENTS

xiii

	PAGE		PAGE
Wren	516	Lapland Bunting	557
Reed-Pheasant, or Bearded Tit- mouse	518	[White-throated Bunting]	558
Blue Titmouse	520	Chaffinch	558
Great Titmouse	521	Brambling	559
Coal-Titmouse	522	Goldfinch	560
Marsh-Titmouse	523	Siskin	562
Willow-Titmouse	524	[Citril Finch]	563
Crested Titmouse	525	Linnet	563
Long-tailed Titmouse	526	Twite	565
Nuthatch	527	Redpoll	566
Tree-Creeper	529	[Hornemann's Redpoll]	567
[Wall-Creeper]	531	Lesser Redpoll	567
Pied Wagtail	531	[Snow-Finch]	568
White Wagtail	533	Sparrow	568
Grey Wagtail	535	Tree-Sparrow	568
Yellow Wagtail	536	Serin	569
Blue-headed Wagtail	538	[Rose-Finch]	570
[Grey-headed Wagtail]	539	Crossbill	570
[Indian Blue-headed Wagtail]	539	[Parrot-Crossbill]	571
[Black-headed Wagtail]	539	Barred Crossbill	572
Tree-Pipit	539	Bullfinch	572
Titlark	541	Hawfinch	574
[Red-throated Pipit]	541	Greenfinch	575
Richard's Pipit	542	Grey Shrike	577
Tawny Pipit	543	[Pallas's Grey Shrike]	578
Water-Pipit	544	[Lesser Grey Shrike]	578
Rock-Pipit	544	[Southern Grey Shrike]	578
Shore-Lark	545	Red-backed Shrike	578
Lark	547	Woodchat	580
[Black Lark]	548	Waxwing	581
[Short-toed Lark]	548	Golden Oriole	581
[Crested Lark]	548	Starling	583
Wood-Lark	548	[Black Starling]	585
Bunting	549	Rosy Starling	585
Yellow Hammer	551	Raven	586
Cirl-Bunting	552	Crow	588
[Yellow-breasted Bunting]	553	Grey Crow	590
Reed-Bunting	554	Rook	591
[Dwarf Bunting]	554	Jackdaw	593
[Rustic Bunting]	555	Jay	594
[Black-headed Bunting]	555	Magpie	596
[Ortolan-Bunting]	555	Nutcracker	597
[Large-billed Reed-Bunting]	556	Chough	599
Snow-Bunting	556	[Alpine Chough]	600



LIST OF ILLUSTRATIONS

	PAGE		PAGE
Capercaillie	1	Curlew	84
Blackcock and Greyhen	5	Whimbrel	86
Foot of Blackcock	6	Black-tailed Godwit	88
Grouse	8	Bar-tailed Godwit (summer)	90
Ptarmigan (in winter)	10	Bar-tailed Godwit (winter)	91
Pheasant	12	Red-breasted Godwit	92
Partridge	14	Sandpiper or Summer Snipe	93
Red-legged Partridge	17	Spotted Sandpiper	94
Quail	19	Green Sandpiper	95
Pallas's Sand-Grouse	21	Solitary Sandpiper	96
Wood-Pigeon or Ring-Dove	23	Feathers of Sandpipers	97
Stock-Dove	26	Wood-Sandpiper	98
Blue-Rock or Rock-Dove	28	Redshank	99
Turtle-Dove	30	Spotted Redshank	101
Water-Rail	31	Lesser Yellowshank	102
Corn-Crake or Land-Rail	34	Greater Yellowshank	102
Little Crake	36	Greenshank	104
Baillon's Crake	37	Ruff (spring)	106
Spotted Crake	39	Ruff (winter)	108
Moor-Hen or Water-Hen	40	Buff-breasted Sandpiper	109
Coot	43	Sanderlings	110
Crane	45	Stint	113
Bustard	47	Temminck's Stint	115
Head and neck of Cock Bustard	48	Sharp-tailed Sandpiper	117
Little Bustard	49	Knot	119
Stone-Curlew or Thick-Knee	51	Purple Sandpiper	121
Cream-coloured Courser	55	Curlew-Sandpiper	123
Pratincole	57	Dunlin (summer)	124
Turnstone	59	Dunlin (winter)	126
Plover (winter)	62	Broad-billed Sandpiper	127
Plover (cock in summer)	63	Red-necked Phalarope (female)	128
Grey Plover (winter)	65	Grey Phalarope	130
Grey Plover (summer)	66	Woodcock	132
Lapwing or Peewit	67	Head of Woodcock	135
Ringed Plover	70	Snipe	136
Little Ringed and Ringed Plover	71	Tail of Snipe	138
Little Ringed Plover	72	Great Snipe (male)	139
Kentish Plover	73	Jack-Snipe (male)	140
Caspian Sand-Plover	74	Common Gull	142
Dotterel	75	Herring-Gulls (adult and immature)	145
Sea-Pie or Oyster-Catcher	78	Greater White-winged Gull	147
Stilt	80	Iceland Gull	150
Avocet	82	Great Black-backed Gull	151

LIST OF ILLUSTRATIONS

	PAGE		PAGE
Lesser Black-backed Gull	154	Red-throated Diver	240
Black-headed Gull (summer)	155	Heron	242
Black-headed Gull (winter)	157	Purple Heron	246
Little Gull	158	Great White Heron	247
Sabine's Gull	159	Little Egret	248
Ivory-Gull (male)	161	Squacco Heron	249
Kittiwake	162	Night-Herons	251
Black Tern (summer)	165	Little Bittern (male)	253
White-winged Tern (summer)	167	Bittern	255
Caspian Tern (summer)	168	American Bittern	257
Gull-billed Tern (male in summer)	170	Stork	258
Common Tern (summer)	171	Black Stork	259
Arctic Tern (female in summer)	173	Glossy Ibis	260
Young Arctic Terns	174	Spoonbill	262
Roseate Tern (summer)	175	Whooper Swan	266
Sandwich Tern (summer)	177	Bewick's Swans	269
Sooty Tern	178	Mute Swan	270
Little Tern	180	Heads of British Swans	271
Great Skua	181	Grey Lag Gander	272
Temminck's Skua	184	White-fronted Goose	275
Arctic Skua	185	Bean-Goose	276
Arctic Skua (pale and dark phases)	186	Pink-footed Goose	278
Young Arctic Skua	187	Barnacle Goose	280
Long-tailed Skua	188	Brent Goose	281
Razorbills in Breeding-Plumage	190	Mallard and Wild Duck	284
Young Razorbill	193	Gadwall	287
Great Auk	194	Teal (drake)	289
Skeleton of Great Auk	195	Teal (duck)	290
Guillemot (summer)	196	Wigeon (duck and drake)	292
Guillemot (winter)	197	American Wigeon	294
Bridled Guillemot	198	Pintails (duck and drake)	295
Brünnich's Guillemot	199	Garganey (duck and drake)	297
Black Guillemot (winter)	200	Shoveller (duck and drake)	300
Black Guillemot (adult and young in summer)	201	Sheldrake (male)	303
Little Auks or Rotches	202	Ruddy Sheldrake	307
Puffins	205	Red-crested Pochard	309
Storm-Petrel (male)	207	Pochard	312
Fork-tailed Petrel	209	White-eyed Pochard	315
Madeira Petrel	210	Scaup-Duck (male and female)	317
Wilson's Petrel	211	Tufted Duck	320
Fulmar (light phase)	213	Golden-eyes (duck and drake)	322
Fulmar (dark phase)	214	Long-tailed Duck (male)	325
Great Shearwater	215	Eiders (male and female)	327
Manx Shearwater	217	King-Eider (drake)	330
Little Dusky Shearwater	219	Scoter	331
Sooty Shearwater	220	Velvet-Scoter	333
Sooty Shearwater	221	Surf-Scoter	334
Bulwer's Petrel	222	A Pair of Smews	336
Great Crested Grebe (female in summer)	223	Goosander (male and female)	339
Foot of Great Grebe	227	Merganser (male)	341
Red-necked Grebe	228	Young Mergansers	343
Sclavonian Grebe	229	Cormorant	344
Black-necked Grebe	231	Shags	348
Dabchick	233	Gannet (adult male)	350
A Pair of Great Northern Divers	235	Young Gannet	352
Black-throated Diver	238	Peregrine Falcon	353
		Hobby (male)	357

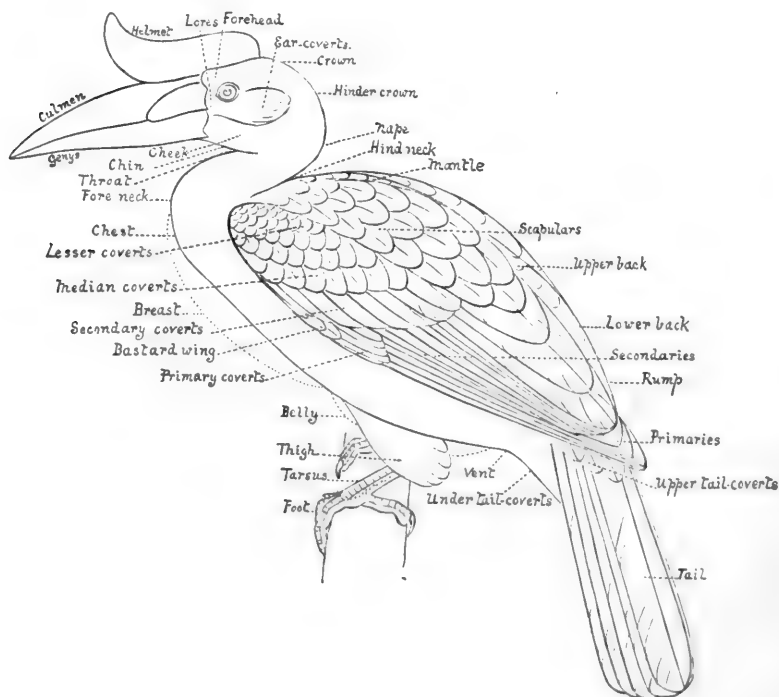
LIST OF ILLUSTRATIONS

xvii

	PAGE		PAGE
Iceland Falcon	361	Hedge-Sparrow	478
Iceland Falcon (hovering)	362	Spotted Flycatchers (male and female)	480
Red-footed Falcon	363	Pied Flycatcher (male)	482
Merlin	364	Swallow	484
Kestrel (male)	366	Sand-Martin (flying)	486
Honey-Buzzard	369	Sand-Martin	487
Goshawk (female)	372	Martin	488
Sparrow-Hawk (male)	375	Whitethroat (male)	490
Sparrow-Hawk (female)	376	Lesser Whitethroat	492
Buzzard (female)	378	Blackcap	494
Rough-legged Buzzard	381	Garden-Warbler	495
Hen-Harrier (immature male)	383	Dartford Warbler	497
Hen-Harrier (female)	384	Wood-Wren	499
Montagu's Harrier	386	Willow-Wren	500
Marsh-Harrier (male)	388	Chiff-Chaff	501
Kite	390	Sedge-Bird	505
White-tailed Eagle	393	Reed-Wren	507
Eagle	395	Marsh-Warbler	508
Osprey	397	Grasshopper-Warbler	509
Barn-Owl	401	Savi's Warbler	511
Long-eared Owl	405	Golden-crested Wren	512
Long-eared Owl at bay	406	Fire-crested Wren	513
Short-eared Owls	407	Water-Ouzel	514
Tawny Owls (male and female)	409	Wren	516
Tengmalm's Owl	411	Reed-Pheasant (male)	518
Eagle-Owl	412	Reed-Pheasant (female)	519
Snowy Owl (female)	414	Blue Titmouse	520
Scops Owl	417	Great Titmouse	522
Little Owl	419	Coal-Titmouse	522
Cuckoo	420	Coal-Titmouse (male)	523
Young Cuckoo	424	Marsh-Titmouse	524
Nightjar	426	Crested Titmouse	525
Swift	429	Long-tailed Titmouse	527
Alpine Swift	432	Nuthatch (female)	528
Roller	433	Tree-Creeper	530
Bee-eater	435	Pied Wagtail (male in summer)	532
Kingfisher	437	White Wagtail (summer)	534
Hoopoe	440	White Wagtail, showing upper and lower surfaces	534
Green Woodpecker	442	Grey Wagtail (male)	535
Tail and foot of Green Woodpecker	444	Grey Wagtail (female)	536
Great Spotted Woodpecker	445	Yellow Wagtail (male)	536
Lesser Spotted Woodpecker	447	Yellow Wagtail (female)	537
Wryneck (male).	448	Blue-headed Wagtail (male)	538
Thrush	451	Tree-Pipit	540
Mistle-Thrush	453	Titlark	541
Redwing	455	Richard's Pipit	542
Fieldfare	456	Tawny Pipit	543
Blackbird (male)	457	Rock-Pipit	545
Ring-Ouzel	459	Shore-Lark	546
White's Thrush	461	Lark	547
Nightingale	463	Wood-Lark	549
Redbreast	466	Bunting	550
Redstart (male)	469	Yellow Hammer	552
Black Redstart	471	Girl-Bunting	553
Wheatear (male)	472	Reed-Bunting (male)	554
Whinchat (male)	475	Snow-Bunting	556
Stonechat (male and female)	476		

LIST OF ILLUSTRATIONS

	PAGE		PAGE
Lapland Bunting	558	Red-backed Shrike (male)	579
Chaffinch	559	Waxwing (male)	581
Brambling	560	Golden Oriole	582
Goldfinch (male)	561	Starling	583
Siskin	562	Rosy Starling (male)	585
Linnet (male)	564	Raven	587
Twite	565	Crow	589
Lesser Redpoll	567	Grey Crow	590
Sparrow (female)	568	Rook	591
Tree-Sparrow	569	Head of Young Rook	592
Serin	569	Jackdaw	594
Crossbill	571	Jay	595
Bullfinch	573	Magpie	597
Hawfinch (male)	574	Nutcracker	598
Skull and Lower jaw of Hawfinch	575	Chough	599
Greenfinch (female)	575	Common Partridge, showing sexual difference of wing	600
Greenfinch (male)	576		
Grey Shrike	577		





MOUNTED IN THE ROWLAND WARD STUDIOS

CAPERCAILLIE.

THE SPORTSMAN'S BRITISH BIRDS

Capercaillie (Tetrao urogallus). IN a book on British birds, written more expressly to meet the needs of the sportsman and the amateur rather than the requirements of the scientific ornithologist, it is specially fitting that we should commence with the capercaillie, or capercaillie, as typifying the game-birds, or Gallinæ, which take their popular title as being the group of most importance to the gunner. On the other hand, it is not to be supposed that the selection of this group as the starting-point has been in any way made in deference to its special interest for sportsmen. Quite the contrary, for although it has been customary in works of the present nature to commence with either the birds-of-prey or the perching-birds, modern researches have tended to show that the game-birds form perhaps the most generalised group in the entire class of birds, and consequently nearly related to the ancestral stock from which a number of the more specialised groups have taken origin. They are therefore eminently suited to form the starting-point for a systematic account of the birds of the British Islands. Apparently, indeed, the game-birds are intimately connected with the ostriches and their allies, by means of that remarkable group of South American birds known as tinamus, which lay such beautifully glazed blue or purple eggs.

To record all the distinctive characteristics of the various major groups (commonly designated "orders," but preferably ranked merely as "suborders"), into which British birds are divided, is not within the scope of the present work. It will, however, be convenient to notice a few of the more obvious of these, as occasion arises.

Apart from certain features of the skull and skeleton, the more typical game-birds, such as those to be met with in the British Islands, are characterised by their stout and compact build, rather long neck, strong and arched beak of moderate length, and powerful legs, which are furnished with four toes and specially adapted for scratching the ground—whence the name *Rasores*, as an alternative title for the group. The concave wings, which fit closely to the body, are adapted for a strong, although often noisy and laboured flight; and the body-feathers have after-shafts. Very characteristic of the group is the advanced condition in which the young are born; and it is specially noticeable that in the longitudinal striping of the first downy dress many of these birds resemble ostriches and tinamus. The great difference between the plumage of the two sexes is likewise a characteristic of many game-birds. The eggs, of which there is frequently a large number in a clutch, are laid on the ground in the case of all the more typical representatives of the group, with but little protection in the way of a nest, and are either uniformly coloured or marked merely with superficial spots, and none of the more deep-seated markings found in those of many other birds. The essentially primitive and generalised nature of the typical game-birds is thus further exemplified by their nesting-habits, since it seems probable that the practice of nesting in trees is one which has been acquired, and that laying on the ground was the original condition.

The capercaillie is the typical representative of the genus *Tetrao*, and thus of the family Tetraonidæ, or grouse-tribe, in which the hind-toe is elevated above the other three, while the nostrils are concealed by feathers, and the legs, and in most cases also the toes, are more or less completely feathered.

Distinguished from all other British game-birds by its great size—cocks measuring about 35 and hens 25 inches in length—the capercaillie is further characterised by the rounded tail of both sexes. In the adult male the beak is whitish horn-colour; there is a bare patch of vermilion skin above the eye; the head and neck are black, powdered with grey, the back and upper tail-coverts dark slate-colour, almost black, and speckled with grey; while the upper surface of the wings is rusty black, with grey stippling. The tail-coverts are tipped with

white, and a white bar of irregular shape also traverses the middle of the tail, which is elsewhere black. A dark glossy green bar runs across the fore part of the breast; the abdomen is white; the legs are covered with long hair-like feathers; and the toes are fringed with scales showing a comb-like arrangement. Young males in first plumage resemble females; at the next moult the adult dress is assumed, but it is three years before the full weight is attained, or the white bar on the tail completed. The female may be distinguished from the greyhen by her rounded tail and larger size. Further distinguishing marks are the triangular rufous patch at the base of the neck, and the colour of the greater coverts, which are black tipped with white. The back is mottled with light yellow and large blotches of black; and the feathers on the under-parts are buff, with a subterminal bar of black, and broad white tips. The chick is light buff, with a black horse-shoe mark on the forehead, the crown variegated with black, and the back tinged with white and showing indistinct black mottlings.

The meaning of the name capercaillie is somewhat doubtful, but it probably signifies "bird-of-the-wood," although it has been translated as "horse-of-the-woods." The range of the species originally extended from the British Islands to north-eastern Turkestan, the Altai and Lake Baikal; but the bird was exterminated—probably to a great extent owing to the felling of the pine-forests which form its habitat—in the British Islands during the eighteenth century, although it has been reintroduced with fair success into Perthshire, Forfarshire, and the neighbouring districts. So early as the middle of the seventeenth century this magnificent bird had already become scarce in Great Britain, and it was probably killed out, even in Scotland, by about the year 1770. The discovery of its bones in a cave near Teesdale proves its former abundance in Yorkshire. In Ireland a few capercaillie survived in the neighbourhood of Thomastown, County Tipperary, till about the year 1760; and the species probably still existed in some parts of the country ten or twenty years later, but there is no evidence that it lingered at the dawn of the nineteenth century. Three other species of capercaillie respectively inhabit the Ural Range, north-eastern Siberia, and Kamchatka. In Scandinavia the capercaillie ranges to 70° north latitude, but diminishes both in numbers and in bodily size as the limits of the pine-woods are approached.

The nest consists of nothing more than a scantily lined hollow scratched in the ground, and usually well concealed from view. The eggs are very similar to those of the greyhen, but larger; their colour

being generally reddish buff marked with flecks and blotches of reddish brown. From eight to twelve seems to be the normal number in a clutch.

As already mentioned, the capercaillie is essentially a bird of the pine-forests, and feeds on the leaves and young shoots of the Scotch fir. It is a polygamous bird, and at certain seasons of the year the cocks take up positions on tall pines and attract around them a number of hens, before whom they make a nuptial display, known in Scandinavia as the *spel*. During the breeding-season frequent contests take place between rival cocks. Capercaillie cocks vary in weight from 10 to as much as 13, or even 16 or 17 lbs., southern Sweden producing some of the heaviest birds, while those introduced into Scotland appear to be small. From 5 to 6 lbs. is the weight of a hen. Capercaillie-shooting lasts from August 10 till December 20.

Blackcock There appears to be some degree of uncertainty
(*Tetrao tetrix*). whether the name "grouse" was originally the
 designation of this species or of *Lagopus scoticus*.
If, however, it really means, as seems probable, the speckled or mottled bird, there can be little doubt that it properly pertains to the latter; and since, in any case, it has been accepted for generations as the name of that species, it is best to follow that usage. Moreover, as the present species is a relative of the capercaillie rather than of the grouse and ptarmigan, it seems preferable that it should be called the blackcock rather than black grouse, the designation "black game" not being by any means a good specific title. If it be objected that in taking the designation of the male (the female being known as the greyhen) as the title of the species we are departing from normal usage, the case of the robin, or robin redbreast, may be cited in justification. The fact of the male and female in this particular species having separate designations is doubtless due to the extraordinary difference in the plumage of the two sexes—a difference altogether unsurpassed among the larger British birds, if not indeed among all the birds of our islands. The fact that the tail of the male is of the well-known lyrate shape, instead of wedge-like, has been held to justify the separation of the blackcock as a genus apart from the capercaillie under the designation *Lyrurus tetrix*. Such refinements in classification seem, however, uncalled for. In this case the tail of the greyhen, although distinctly notched, does not depart far from the capercaillie type; and the blackcock merely shows an ultra-specialisation in this respect, as well as in colour, in the male; such specialisation, so far

as colour is concerned, being paralleled among mammals by the black-buck among antelopes and the bantin among wild oxen.

The lyre-shaped tail of the cock, and the rather deep forking of this appendage in the hen are sufficient to distinguish this species; steely blue is the colour of the plumage of the cock, although there is a white bar across the secondary wing-quills, while the under tail-coverts are wholly colourless. A

vermilion band of bare skin runs above the eyes; the beak is black; and the legs are feathered to the bases of the toes, which, like those of the capercaillie, are clad in scales and fringed at the edges. The black markings on the tail of the hen differ from those of the capercaillie in being stippled in fine lines, instead of forming bars; while the back is irregularly barred with golden brown between large oval black blotches. The chestnut-brown crown and black stripe behind the eye distinguish the blackcock from the capercaillie chick; the former also having a dusky stripe, turning into chestnut-brown on the loins, and down the back.

The blackcock has an extensive range in Europe and Central and northern Asia, being found so far south as the eastern Pyrenees, northern Italy, and the north of the Caucasus. The bird inhabiting the greater part of the Caucasus has, however, been described as a distinct species, as have those respectively found in southern Russia and Turkestan on the one hand, and in west Siberia on the other. Whether, however, some of them are more than local races, may be doubtful. In their distribution blackcock are therefore very similar to capercaillie, although ranging farther south; and the affinity between



MOUNTED IN THE ROWLAND WARD STUDIOS

BLACKCOCK (ON RIGHT) AND GREYHEN (ON LEFT).

the two birds is further shown by the fact of their interbreeding freely. In Great Britain blackcock at the present day are widely distributed in Scotland and the north of England, and also occur locally in many parts of the south, notably Somerset and Devon, as well as in the New Forest. In Tudor times they occurred at Eltham, in Kent, and in Wolmer Forest. From the latter area they had, however, become exterminated when Gilbert White wrote his *Selborne*, but they have been reintroduced there, as well, apparently, as in the neighbourhood of Guildford in Surrey, whence they have spread to some of the adjacent counties. The moors of Cornwall are also sanctuaries



FOOT OF BLACKCOCK.

for the species, which likewise lingered in Leicestershire, and near Sandringham, as well as in other localities too numerous to mention. In Wales the species appears to be indigenous only in Montgomeryshire; but a few occur in most other counties except Anglesey. Among the isles of the north of Scotland blackcock are still numerous in Islay, although they have long since disappeared from Gigha, where they once occurred. The species appears to have been always un-

known in Ireland, and whenever introduced there invariably dies out in a short time. Possibly the climate is too mild.

Pine-woods and birch-forests are the home of the blackcock in many parts of Scotland, but in more southern districts it has perforce to dwell on the open moors, to which, as well as to stubble-fields, it also resorts to feed in the north. Where its home is among woods, the blackcock is indeed almost as much an arboreal bird as is the capercaillie; and, like the latter, it is also a polygamous species, the cocks at the beginning of the breeding-season selecting particular spots for displaying themselves before their coveys of greyhens, and likewise engaging in contests for the possession of the latter. During the time of this *spel* or *lek* the scarlet patches above the eyes of the cocks become so swollen as to rise above the crown of the head, and then

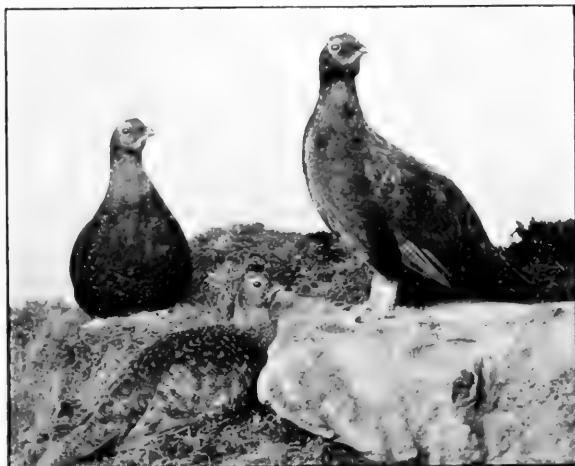
only assume their full splendour of tint. Both blackcocks and greyhens, especially in Siberia, not unfrequently show a large but variable admixture of white in those parts of the plumage which are normally dark; and this same tendency towards albinism is also displayed by the occasional occurrence of drab-coloured greyhens. The assumption of the male plumage by barren individuals of the latter is also not uncommon in this species, as in certain other game-birds. The interbreeding of this species with the capercaillie has been already mentioned; and, what is more remarkable, hybrids between it and the grouse are also known. Weights of between 2 lbs. 11 oz. and 3 lbs. are recorded for Scotch blackcock, and of 3 lbs. for greyhens. The nest is very similar to that of the capercaillie, being a slight hollow in the ground among bracken, sparsely lined with leaves. From six to ten eggs, very similar to those of the capercaillie, are usually found in a nest, but as many as sixteen are on record; the latter number being probably the joint product of two hens. Blackcock-shooting lasts from August 20 till December 10 except in Somerset, Devon, and the New Forest, where the period is from September 1 till December 10.

Grouse (Lagopus scoticus). Whether or no the name grouse was originally applied to the present species or to the blackcock, universal usage associates it with the latter, which is the grouse *par excellence*, and, consequently, so far as British birds are concerned, needs no prefix; the title, red grouse, thus being superfluous. Nevertheless, the British species is not the type of the genus *Lagopus*; that position being held by the ryer or willow-grouse (*L. albus*) of Scandinavia. The members of this genus differ from the capercaillie and blackcock not only by the thick feathering of the legs and toes and the presence of sixteen (in place of eighteen) feathers in the tail, which is of medium length, but likewise in the important fact that the cock pairs with a single hen instead of having a whole party of females under his protection.

The grouse is one of the few birds recognised by all ornithologists as quite peculiar to the British Islands. It is, however, in reality nothing more than a local race of the continental ryer or willow-grouse, which, from the nature of the climate of its habitat, has lost the habit of turning white in winter, and has also acquired certain peculiarities in coloration and in voice. In retaining the dark summer plumage at all seasons of the year, the grouse is indeed different from all other representatives of the genus *Lagopus*. This alone can, however, scarcely be regarded as a ground for specific distinction, any

more than can the fact that the mountain-hare in Ireland presents the same peculiarity when compared with its representative in Scotland. Nevertheless, it is perhaps preferable to employ the scientific name for this bird now generally in use, rather than to follow the new fashion of calling it *Lagopus albus scoticus*.

As regards plumage, the grouse is a variable bird, and peculiar in that the buff and black plumage of the cocks is assumed by a complete moult beginning in June—after the breeding-season; this livery being worn till September, when it is partially replaced by the winter-dress of chestnut and black. The hens also undergo a partial



MOUNTED IN THE ROALAND WARD STUDIOS

GROUSE.

moult in March, which is complete by May, constituting a specially protective breeding-plumage; and moult again in the autumn, when they assume the winter-dress. At all times grouse may be distinguished from ptarmigan by the colour of the quill-feathers, which are blackish brown. The cock exhibits three colour-phases: firstly, a red phase without white

spots, found in the low grounds of Ireland, the west of Scotland, and the Outer Hebrides; secondly, a rare black phase, in which the plumage presents an intermediate character between the first and third types; and, thirdly, a white-spotted form occurring in the high grounds of the north of Scotland. In the hen five phases occur, namely, a red, a black, a white-spotted, a buff-spotted, and a buff-barred; the red and black phases being rare, the buff-spotted the commonest, and the buff-barred type occurring in the south of Ireland. The hen is smaller than the cock, and has the red crescent of bare skin above the eye reduced. The chick in down is yellowish buff above, with a dark reddish-brown patch on the crown, and dark stripes down the back.

Unlike the capercaillie and blackcock, the grouse is essentially a

denizen of the open moors, seldom perching and never roosting in trees. In this respect it differs somewhat from its cousin the willow-grouse. It is distributed all over the Scottish moorlands, from the sea-coast to the mountain-peaks, while it ranges southward along the Pennine chain through the moors of Yorkshire and Derbyshire, and thence westwards into Lancashire, Cheshire, Staffordshire, and Shropshire, and so on into Wales, as far south as Glamorganshire, although practically unknown in Anglesey. It is thus essentially a bird of the colder districts of the country, as is further demonstrated by the fact that while it flourishes in the Hebrides and Orkneys, as well as in most islands nearer to the coast of Scotland, it utterly fails to acclimatise itself when turned out on the heaths of Surrey and other southern English counties. In Ireland, where the plumage is generally of a somewhat lighter colour, especially on the under-parts, grouse are found on all the mountain-ranges, and also on the red bogs of the central plain, and they have been found breeding in every county. The species is unknown in the Shetlands.

The grouse is a rather early breeder, and eggs may be found in warm districts in April. The eggs, which are indistinguishable from those of other members of the genus, are creamy white in ground-colour, more or less profusely spotted or blotched with rich reddish brown of varying intensity and brightness. A mere hollow among the heather and grass, lined with such vegetable matter as may be most easily obtained, constitutes the nest; and in this the hen lays from seven to ten, or occasionally twelve to fifteen eggs, which require twenty-four days to incubate. Only one brood is hatched in a season, and the cock assists in tending the young birds, which are kept on the wildest parts of the moors. The early morning crow of the cock grouse is a well-known sound, as is the peculiar croak of his partner. The weight of a cock grouse is generally something near a pound and a half, and that of the hen about a quarter of a pound less, but two pounds is no uncommon weight for a fine cock. Grouse-shooting commences on August 12, and concludes on December 10.

Ptarmigan Despite the fact that it resembles the willow-grouse in
(*Lagopus mutus*). turning white in winter, the ptarmigan, or second
British representative of the genus *Lagopus*, differs
much more markedly from the former than does the grouse. Male
ptarmigan in the white winter-dress may always be distinguished at
a glance from willow-grouse in the same state by the presence of a
black patch in front of each eye, which is rudimentary or wanting in

the female. The genus *Lagopus*, it may be mentioned in this place, has a much wider geographical range than *Tetrao*, being, in fact, circumpolar; two of its representatives, namely, the willow-grouse (*L. albus*) and the rock-ptarmigan (*L. rupestris*) being common to the northern parts of both hemispheres.

The ptarmigan differs from the grouse not only in its inferior size—measuring not more than $14\frac{1}{2}$ inches in length—but by its white quill-feathers, although in immature birds the shafts of these feathers are blackish brown. Like grouse, ptarmigan vary in the tone of their colouring, and no less than three distinct plumages are



MOUNTED IN THE HUXLEY WARD STUDIOS

PTARMIGAN: COCK IN WINTER.

assumed during the year. In summer the cock has the upper-parts and flanks dark brown mottled and barred with greyish brown; the tail-feathers black tipped with white, and the abdomen white; while the hen is black variegated with rufous buff above and rufous buff barred with black below. In autumn the upper-parts, breast, and flanks are grey mottled with black, and the under-parts white; in winter the whole plumage—

except the tail-feathers (barring the middle pair, and a black patch in front of the eye in the cock), which are black—turns white. The chick resembles that of the grouse, but is more chestnut in tone, with the patch on the crown paler in the centre.

Ptarmigan inhabit the higher zones of the Alps and Pyrenees as well as the more northern European mountain-ranges, extending eastwards into the Urals, and probably the Altai and some of the other Central Asian chains as far as Lake Baikal. In Iceland the genus is represented by a race of the rock-ptarmigan which has been named *L. rupestris islandorum*. In the British Islands the ptarmigan is restricted to the mountains of Scotland and some of the neighbouring islands, its reported former occurrence in Cumberland and Wales being

apparently incorrect, while there is no record of its ever having been a native of Ireland. It likewise appears to have been always unknown in the Orkneys and Shetlands; but it exists in Mull, Islay, and Jura, although now very scarce in the two latter, and is also found, though by no means abundantly, in Skye, Lewis, and Harris.

The moist breezes from the Atlantic seem unsuitable to the ptarmigan, which is therefore unknown in several of the islands and mountains on the western side of Scotland. These birds are but seldom seen on the very summits of mountains like Ben Nevis, preferring a somewhat lower elevation, not much exceeding 4000 feet. Here their haunts are the stony plateaus and rocks above the limits of trees and heather. The usual breeding-time in Scotland is May, the eggs—of which there are usually from eight to ten in a clutch—being laid in a shallow excavation in the turf lined with feathers and grass. As a rule, the eggs are somewhat paler than those of the grouse, with the markings less dense. The British Museum possesses specimens from Ross-shire, Inverness, and the Grampians. Young ptarmigan, which can run as soon as they are hatched, are adepts at concealing themselves; their efforts being aided by the hen, who by various antics seeks to divert attention from her brood. The food of the adult birds, like that of grouse, consists of the leaves and young shoots of various shrubs, supplemented in autumn by berries. As a rule, ptarmigan collect into packs of considerable size at the commencement of winter, but in untoward seasons this packing may commence in August. So close do ptarmigan lie, that the peculiar croaking cry may often be the only clue to indicate that the tourist may be in their midst. The season for shooting ptarmigan is the same as that for grouse.

Pheasant
(*Phasianus*
colehicus).

Although undoubtedly an alien whose original home appears to have been Asia Minor and the neighbourhood of the Caspian, the pheasant, by reason of its long sojourn (dating, it would seem, from at least the eleventh century) in our islands may now claim to be regarded as a naturalised British subject. Nevertheless, a very brief reference will suffice for the species, especially as it is a bird with which every one is familiar; and it would obviously be of no real interest to refer to the extent of its range in the British Islands. Before proceeding to such brief notice of the species as seems sufficient for the purpose of the present volume, it should be mentioned that the pheasant brings us to the second family group of the game-birds, namely, the Phasianidæ, of which it is the type. From the grouse family, or Tetraonidæ, the

Phasianidæ, which include the partridges and quails, are distinguished by the absence of feathering on the legs and feet, and of horny comb-like appendages on the latter, as well as by the frequent presence of one or two spurs on the former. In the typical pheasants, which form an exclusively Old World group, unknown in Africa, the tail considerably exceeds the length of the wing, and the plumage of the cock is remarkable for its brilliancy. In



MOUNTED IN THE ROWLAND WARD STUDIOS

PHEASANT.

the original pheasant introduced into Britain the neck was uniformly dark, but the breed has now been crossed with the ring-necked Chinese pheasant and also with the Japanese species.

Indeed, the so-called old English pheasant, the true *Phasianus colchicus*, is almost, if not quite, extinct in Great Britain, having been swamped by crossing with the ring-necked and Japanese species (*P. torquatus* and *P. versicolor*), introduced about the middle of the eighteenth century; the result of this crossing having been to produce finer birds than are to be met with among any of the original species. Birds more or less inclining to one or the other of the parent types are

still to be met with in English coverts, and may be distinguished as follows:—*P. colchicus* type—in which there is no white ring round the neck and the long feathers arising from the lower part of the back—generally described by sportsmen as rump-feathers—are glossed with purple-lake or oily green, according to the direction of the light in which they are viewed, while the chest and flanks are fiery orange; the tail-feathers being marked with narrow black bars set wide apart: secondly, the *P. versicolor* type, in which the white ring is absent, while the rump-feathers are a bluish slate-colour; the interscapulars are dark green shot with purple, and ornamented with crescentic lines of buff and the

under-parts uniformly dark green : thirdly, the *P. torquatus* type, with a white ring round the neck, the rump-feathers slate-colour, with a rust-coloured patch on each side, the interscapulars and flanks orange-buff colour, and the bars on the tail broad. Hens of the *P. colchicus* and *P. torquatus* types closely resemble one another, the interscapulars having a chestnut ground with black middles and violet and purple tips ; but in the hens of the *P. versicolor* type the feathers of the interscapulars have black middles and green tips. Young birds in first plumage resemble the hens. In the chick the crown of the head is traversed by a brownish-chestnut stripe, bordered on each side by a narrower line, which extends from above the eye to the nape. The middle stripe is continued down the neck and back, where it widens out, and is accompanied by another dark line on each side. The under-parts are pale buff.

That the British pheasant has been profoundly modified by its semi-domesticated mode of life in the greater part of the kingdom is sufficiently demonstrated by the fact that it is polygamous, whereas in all wild members of the group the cock pairs with a single hen. In this respect the British pheasant has undergone a development analogous to that which has occurred in the case of the domesticated duck. As regards food, pheasants are practically omnivorous, devouring almost anything from grain to wire-worms, of which latter they consume large quantities. They dwell and breed in thick covert, roosting in the boughs of trees ; the cocks, when retiring to rest, and again at dawn, uttering the well-known crow which too often betrays the whereabouts of these birds to the poacher. The nest, which is formed mainly of leaves, is placed on the ground ; and the eggs are usually olive-brown in colour, although they may vary from dark cream-colour through brown to greenish white or greenish blue. Although in this country the hen pheasant is a bad mother, she is always careful to cover up her eggs when leaving the nest. Incubation lasts about twenty-four days, and two or three hens may lay in the same nest. The average weight of cocks has been estimated at from 3 to $3\frac{1}{2}$ lbs., and that of hens at $2\frac{1}{2}$ lbs., but very much greater weights may be obtained by special feeding. Pheasant-shooting lasts from October 1 to February 1 ; and "bouquet" is the correct term to apply to a party of these birds.

Partridge As the pheasant is essentially a bird of the thick
(*Perdix cinerea*). covert, and the cock has consequently been enabled
to flaunt a gorgeous livery for the delectation of his
partner without fear that its brilliance should betray him when at rest,

so the partridge is as essentially a denizen of the fallow field or the open sandy heath, and such special ornamentation and decoration as the male has developed are therefore of a subdued and chastened type, not in the least likely to attract the attention of enemies when the bird is squatting or running. In most or all works on British birds this species is designated the common partridge, but such a prefix, as in many analogous instances, is to a great extent superfluous and unnecessary, as the name partridge properly belongs solely to the bird under consideration. By the great Swedish naturalist Linnæus the partridge was named *Tetrao perdix*, but it was subsequently found



MOUNTED IN THE ROWLAND WARD STUDIOS

PARTRIDGE.

inadvisable to use the name *Tetrao* in such a wide sense, and the partridge was accordingly made the type of a genus by itself, with the title *Perdix cinerea*, the Linnæan name thus being raised to a higher grade. For generations this usage was followed, but of late years it has been attempted to rule that what was once the species-name must always remain the species-name, and the partridge

has consequently been re-christened *Perdix perdix*, with the still more pedantic title of *Perdix perdix perdix* for the typical Scandinavian bird. Nowadays, of course, no one would think of using a species-name otherwise than in its original sense, but as our predecessors thought themselves justified in departing from this practice in certain cases, it is difficult to see how we are justified in saying they were acting *ultra vires*. Be this as it may, the readers to whom the present book will appeal will, we venture to think, for the most part prefer the conservative practice of calling the partridge *Perdix cinerea* rather than by the designation referred to above. A similar practice will be adopted in the case of all other British birds in which the Linnæan species-name has been elevated to generic rank.

The partridge, then, is the type of a genus which differs from the pheasants, among other features, by the relative shortness of the tail,

the absence of spurs on the legs of the cocks, and the slight (if any) difference between the plumage of the two sexes. Several species of partridges are now recognised by ornithologists, the range of the genus *Perdix* embracing Europe and a large part of Central and northern Asia. Usually there are eighteen tail-feathers, but in the Himalayan and Tibetan *P. hodgsoniae* there are only sixteen. The partridge itself ranges over the greater part of Europe, and a considerable area in western and Central Asia, extending to the Altai, the Caucasus, Asia Minor, and northern Persia. Several local races of the partridge, such as the Scandinavian, Russian, and Caucasian, have been named; and by some writers the Spanish partridge, the partridge of eastern Europe and southern Siberia, and the migratory Alpine partridge of western Europe, are regarded as distinct species. The four Asiatic partridges are very distinct. In the British Islands the partridge is practically universally distributed, although it does not appear to range naturally to the northward of the Inner Hebrides. It has, however, been introduced into the Orkneys and some of the islands nearer the Scottish coast. Although not abundant, it breeds in every Irish county.

The cocks are distinguished by the fact that the lesser and median wing-coverts and scapulars have buff-coloured shaft-stripes, and their inner webs blotched with chestnut. In the hens these feathers are black with buff cross-bars, while the shafts are as in the cocks. Immature birds resemble the adults, but have the first primary quill pointed instead of rounded at the tip, while the scaling of the legs is yellowish horn-colour. The characteristic "horseshoe-mark" on the breast is well developed in the cocks and immature hens. Young birds, till after the first moult, resemble hens. The downy chick is greyish buff tinged with chestnut-colour: the crown of the head being dark chestnut, the sides of the face yellowish marked by a long, more or less imperfect, loop of black with the ends turned forwards, the back of the neck showing a dark stripe dividing to run along the back on each side of the middle line, and below this on each side a similar dark line enclosing a narrow buff-coloured stripe. From the ordinary type a transition exists towards a rufous or chestnut phase of the partridge, which is by no means uncommon, and when fully developed has the head a dull red, and most of the rest of the plumage dark chestnut. This chestnut phase has been regarded as a distinct species, under the name of mountain-partridge (*P. montana*), but it is certain that it is not even a race. A specimen was seen in Norfolk in 1907. Albino and cream-coloured specimens occur from time to time.

The partridge is strictly monogamous, pairing in February, but

seldom laying till well on in April or May, when the hen deposits usually from ten to fifteen, or even more, eggs, which require three weeks to hatch. In form the eggs vary from oval to pear-shaped, and in colour usually from olive-brown to brownish cream, although white and pale bluish green examples are far from uncommon; in length they are an inch and a half or rather less. As soon as the young are hatched the cock joins the party, which thenceforth forms a "covey," until broken up by the gunner or until its members disperse in pairs the following spring. The reluctance with which partridges take to wing, their heavy whirring flight, their speed in running, and their characteristic call are too well known to need further mention; and it will suffice to refer to their partiality for fields of turnips and clover as places of concealment during the daytime, and for stubbles in autumn as feeding-resorts. When sleeping in the open, the members of a covey are believed to squat down in a circle with their heads directed outwards. From 15 to 16½ oz. is an ordinary weight for a partridge, although birds weighing as much as 17½ oz. are not very uncommon. In England and Scotland partridge-shooting lasts from September 1 till February 1, and in Ireland from September 20 till January 10.

In the old days, when grass was mown with the scythe, it was no uncommon event for brooding partridges to be decapitated by the mowers. As the following incident, which occurred on July 19, 1905, shows, hen partridges sometimes sit so close as not to be flushed by the approach of a noisy mowing machine. On the date in question a farmer at Richmond, Yorkshire, was cutting grass with a mowing machine, when the knife took an egg from a partridge's nest on which the bird at the time was sitting. The farmer picked up the egg, which was not broken, and went to put it back in the nest, when the bird flew off. On examining the nest, it was found that none of the eggs was injured.

**Red-legged
Partridge**
(*Caccabis rufa*).

Like the pheasant, the red-legged partridge can only claim a place among British birds as a naturalised alien; its claim, moreover, is much weaker than that of the larger bird, since its main introduction is much later, dating apparently from 1770, when a number of young ones were turned down in Suffolk by the then Marquis of Hertford and Lord Rendlesham. Some of these are stated to have been introduced into Windsor Park in the time of King Charles the Second, but their descendants appear to have died out.

Strictly speaking, of course, neither the pheasant nor the present species has the slightest right to be included in the British fauna, but as it is customary to regard them as members of the same, it is not desirable that they should be omitted from this volume.

The red-legged partridge is a member of a genus typified by the rock-partridge (*C. saxatilis*) of the Alps and other mountains of the south of Europe, but better known, perhaps, by the chukor (*C. chukar*) so familiar to sportsmen in the Himalaya.

The range of the genus includes a considerable proportion of central and southern Europe, western and the warmer parts of Central Asia, and north Africa. From the true partridges these birds differ by their peculiar type of plumage, showing a conspicuous gorget and barred flanks, the presence of only fourteen tail-feathers, and the arming of the legs with spurs or tubercles.

The hens are distinguishable externally from the cocks only by their slightly smaller size, duller colouring, and the absence of spur-like knobs on the legs; but young birds in first plumage

differ conspicuously from the adults, and resemble partridges of the same age especially on the wings and scapulars, being brown-spotted and streaked with buff and black, and with white shafts to the wing-coverts. Young red-legs may, however, be distinguished from young partridges by the broad stripe of buffish white above the eye. The barred flight-quills are retained till after the assumption of the adult dress, which frequently leads to the supposition that the birds so marked are hybrids between the red-legged and common partridges. The chick is buff, with the crown of the head liver-coloured, a pale buff stripe above the eye, and a brownish-chestnut stripe down the back.

To record the range of this bird in the country of which it has become a colonist will be unnecessary; and it will suffice to mention



MOUNTED IN THE ROWLAND WARD STUDIOS

RED-LEGGED PARTRIDGE.

that it is most abundant in East Anglia, Kent, and Sussex, and that it has not thriven when introduced into Scotland or Ireland. In habits the red-legged partridges differ markedly from *Perdix*, the cocks showing a great propensity to take up a position on some elevated object, such as a rock or a fence, and there to utter the characteristic cry of "chukor." They are also more fond of covert, and prone to run rather than take wing when disturbed. Although the birds do not pair till the end of March or April, the nesting-season is rather earlier than in the case of the partridge. The badly-made nest is placed among herbage of some sort, either in a dry ditch or among growing crops; and the eggs, which take three days longer to incubate than those of the partridge, vary from a dozen to a dozen and a half in number. In ground-colour they are brownish yellow, with spots and blotches of purplish, reddish, or yellowish brown. As being stronger on the wing than the partridge, the present species is a less satisfactory bird to the sportsman. Pale-coloured or white examples are by no means uncommon; and a bird of the latter type was presented in 1905 to the British Museum by Lord Rendlesham, on whose estate in Suffolk it was shot in company with a similar specimen, both being members of the same covey.

Quail
(*Coturnix*
communis).

The spread of the red-legged partridge in the east and south-east of England has been to a considerable extent coincident with the almost complete disappearance of the quail from the British Islands, where, especially in Ireland, it was formerly a common summer-visitor; while in mild seasons a certain number of individuals spent the winter with us, if indeed they were not permanent residents. This disappearance of the quail as a common British species is generally attributed to the wholesale netting of these birds on the spring-migration in the Mediterranean countries for the supply of the markets of Paris, Rome, London, and other large cities. The vast extent to which this netting is carried on may be inferred from the fact that a single vessel has brought no less than 40,000 quails to Marseilles on one trip. In Ireland the quail was most numerous previous to the year 1845, about which date it was not uncommon to find several of its nests in a single field. After 1880 the species was practically unknown in the country for some years, but in the earlier 'nineties it reappeared to a certain extent, after which it again waned. In 1904 and 1905 its characteristic call-note was once more heard in localities where the bird had not been recorded for years. The quail formerly ranged all over

England, Wales, and Scotland, extending as far north as the Hebrides, Orkneys, and Shetland, and even at the present day it is recorded now and again from many parts of the country, especially in the south. In warmer countries the spring migration commences in March and April, but the birds do not reach Great Britain till May, returning south in September and October. For the range of the quail the reader must refer to other works, but it may be mentioned that at certain seasons these birds are to be met with in incredible numbers in India and Egypt, where they afford excellent sport.



MOUNTED IN THE ROWLAND WARD STUDIOS

QUAIL.

By Linnæus the quail was named *Tetrao coturnix*, and by those who see no absurdity in tautology it is accordingly now termed *Coturnix coturnix*, rather than *Coturnix communis*. It is the typical representative of a genus ranging over the warmer parts of the whole of the eastern hemisphere and including half-a-dozen species, all of which are of small size. The tail, which contains either ten or twelve feathers, is so short as to be concealed by the tail-coverts, the legs are without spurs, and the two sexes differ somewhat in plumage. The South African quail (*C. africanus*) is so closely allied to the typical species that it may almost be regarded as a non-migratory local race of the same.

In general colouring and appearance a quail is very like a partridge, from which of course it differs by its greatly inferior size, as it does not exceed 7 inches in length. Adult cocks may be recognised by

the presence of a pair of semicircular dark brown bands extending from the ear-coverts downwards to meet in the middle line of the throat where they form a black patch at their junction ; these bands not being acquired, however, till the second year. Hens are superior in size to cocks, and lack the aforesaid throat-bands ; and birds of the year agree in colouring with hens : chicks are of the usual buff, with a tinge of chestnut on head and back, and a narrow dark stripe down the middle of the two latter.

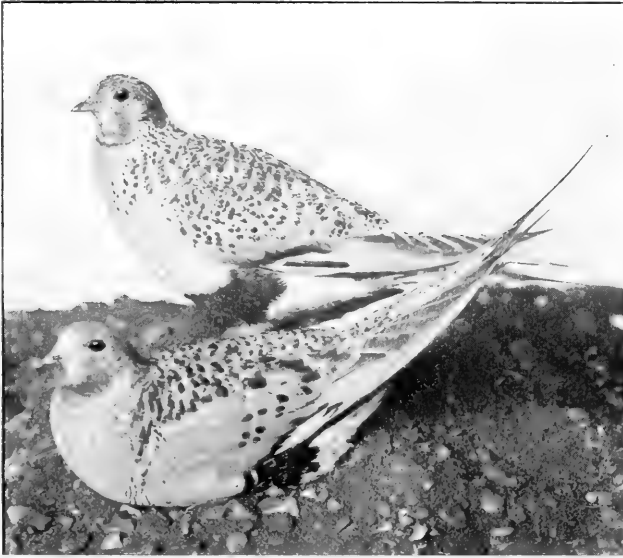
Quail are skulking birds, associating in parties known as "bevvies," and much addicted to the covert afforded by standing crops or stubbles of grain, such as wheat, millet, and maize ; but they may also be found on the bare ground, where their colouring renders them inconspicuous ; when they rise they fly with a low rapid flight. The note is described as *chick-a-lick*. Some difference of opinion prevails as to whether the quail is polygamous or monogamous ; but in many instances, at any rate, the cocks have but one hen each, and it is probably only when females are specially numerous that a departure from this practice is made. The cocks fight to a great extent among themselves. Both grain and insects form the food of the species. The quail is a late breeder ; the eggs, of which there are usually from eight to a dozen, although occasionally as many as a score, not being laid as a rule before May, in a nest which is a mere hollow among the grass or young crops with a few leaves and stalks scattered above its floor. The eggs are of various shades of creamy white, yellowish buff, or buff and greenish yellow, marked with specks and spots or blotches of variable size of deep olive-brown, and reddish and blackish brown. The British Museum possesses clutches from Sheffield and the Cambridgeshire fens. Incubation lasts three weeks, and there is usually one brood in the season.

In Ireland quail-shooting lasts from September 20 till January 10, elsewhere from August 1 till March 1. A belief prevails in Greece that every bevy of quail is headed by a corncrake ; whether or no there is any truth in this, it is certain that the two species generally arrive on their breeding-grounds about the same time, and likewise depart more or less nearly together.

In 1898 a Virginian quail (*Ortyx*, or *Colinus*, *virginianus*) was shot at Bala, North Wales, while others were reported from the neighbourhood. Whence they came is a mystery.

**Pallas's Sand-
Grouse**
(*Syrhaptes
paradoxus*).

The long-tailed and short-legged birds, with a speckled plumage of fawn and black, commonly known as sand-grouse form a small group in regard to the affinities of which some difference of opinion has obtained among ornithologists. From the close correspondence of their bones and muscles to those of the pigeons, they have been regarded as members of the same group as the latter. They differ, however, from pigeons, and thereby resemble the game-birds and plovers, in that their young are downy and active when first



MOUNTED IN THE ROWLAND WARD STUDIOS

PALLAS'S SAND-GROUSE.

hatched, and they agree with the latter in the great length of the blind appendages of the intestine. Then, again, in their flight and mode of drinking sand-grouse are unlike pigeons, from which they differ in that their eggs are coloured and three in number, as in many of the plover group. On the other hand, these birds resemble certain pigeons in having the oil-gland without a tuft. Taking all these circumstances, it is perhaps advisable to follow the usual fashion of regarding the Pteroclidæ, as the sand-grouse are technically called, as the representatives of a group of equal rank with the Gallinæ, or game-birds. For this group the name Pterocletes should be adopted, unless we follow the modern fashion of rendering the titles of all such groups unnecessarily

cumbersome by adding to them the termination "formes," thus making in this case *Pterocliiformes*.

In addition to the features already mentioned, it will suffice to observe that sand-grouse have the hind-toe rudimentary or absent, and short feathered legs, with the toes either feathered or bare. Sand-grouse, as is at once evident from the tone of their plumage, are desert birds, whose distributional area extends over the eastern hemisphere as far east as India and China, ranging as far north as Mongolia. Three generic types are known, each with a small number of species, but Pallas's sand-grouse, which, with other representatives of the same genus, differs from all the rest in the complete absence of the hind-toe, is the only one which visits Europe, such visits taking place at irregular intervals.

The present species, as already mentioned, is specially distinguished by the form of the feet, which have only three toes, united by webs extending as far as the base of the last joint. The cock has the upper-parts brownish yellow barred with black, a white bar of black-tipped feathers across the fore part of the breast, and a dark chocolate band across the abdomen. The greater wing-coverts are chestnut-red, and the two middle tail-feathers produced into long points. In the hen the throat is marked by a narrow black ring, the neck and upper-parts are spotted instead of banded, the chocolate band across the abdomen is wanting, and the tail is shorter. The young in first plumage resemble the hen. In all sand-grouse the down differs structurally from that of other birds, and gives to the chicks a characteristic appearance. While the ground-colour is pale buff, the markings take the form of patches of dark brown and black arranged in irregular wavy lines.

The true home of Pallas's sand-grouse is the Kirghiz steppes and the desert tracts of other parts of Central Asia, inclusive of Mongolia and northern China. From these regions flights of sand-grouse make their way from time to time to western Europe. The two great immigrations in modern times were those of 1863 and 1888, which extended to Ireland, where a single pair was also killed in 1876. Some of these birds bred in England, but such as were not shot, or did not perish from other causes, seem to have eventually made their way back to Central Asia. To describe the habits of a species which is only an occasional visitor to Britain is unnecessary; and it will suffice to mention that the eggs are pale stone-colour, evenly speckled and blotched with yellowish brown.

Wood-Pigeon or
Ring-Dove
(*Columba*
palumbus).

The wood-pigeon, which is one of those birds as to whose titles, both popular and scientific, all are agreed, is our first representative of the group *Columbæ* (or *Columbiformes*, as some would call them), nearly all the members of which may be included in the family *Columbidæ*. As some of the features whereby pigeons differ from sand-grouse have been already mentioned, it will



MOUNTED IN THE ROWLAND WARD STUDIOS

WOOD-PIGEON.

be unnecessary to do more than refer to a few characters whereby the former may be distinguished from the game-birds. An obvious feature is that all four toes are situated in the same horizontal plane, while not less conspicuous is the soft character of the base of the beak, in which the apertures of the nostrils are open and protected by a flap of skin. In the dried skull the nostrils form long slits in place of regular ovals. Then, again, in such pigeons as possess that appendage, the oil-gland is naked instead of tufted; while if we dissect one of these birds, we shall find the pair of blind appendages near the lower end of the intestine forming merely a pair of small bud-like projections

instead of being of considerable length. Very important differences from the game-birds are found in the helpless and naked condition of the new-born young, in the mode in which the parents feed the latter by regurgitation from their own crops, and the manner in which the adults drink. Finally, in place of the numerous and coloured eggs of the game-birds, pigeons lay only a single pair of glistening white eggs of a perfectly elliptical shape on a rudely made platform of sticks. According to modern views, pigeons are nearly related to the plover group, from which, however, they differ markedly as regards their eggs.

Pigeons, as a group, have a world-wide distribution; this being shared by the typical genus *Columba*, to which belong three out of the four indigenous British representatives. In the case of such a small number of species, it would be superfluous to discuss the distinctive characteristics of the type genus.

In addition to being apparently the largest British representative of the group, the wood-pigeon, which measures 17 inches in length, is specially characterised by the white patch on each side of the neck, and the white outermost greater coverts of the secondary quills, which form a large patch on the extended wing. The hen is smaller and duller-coloured than her mate. Young birds are duller-coloured than the adult, lacking both the metallic glow on the feathers and the white neck-patch. The scanty hair-like down of the nestling is yellow.

The wood-pigeon inhabits the greater part of Europe, its breeding-range reaching to between latitude 65° and 66° , and eastwards into north-eastern Persia, beyond which it is replaced by a closely allied species (*C. lasiotis*), in which the patches on the neck are tawny or dark cream-coloured. In Great Britain the wood-pigeon is distributed generally throughout England and Wales, and for some years has been gradually pushing northwards in Scotland into districts where it was previously unknown, this being probably due to the increase of forests, and the consequent supply of suitable shelter and food. It is now found in Argyllshire, and has reached several of the isles, such as Eigg, Mull, Islay, and Jura. In Ireland it is reported to be numerous and spreading, being now found in almost all districts save the most barren. Large flocks visit Ireland during the winter, and numbers of these birds also arrive from the north to pass that season in England. The enormous increase in the numbers of the species, especially in Scotland, is very remarkable, and likewise a serious matter for agriculturists, since these birds feed entirely on

vegetable matter, and inflict very extensive damage on crops of almost every description.

The habits of the wood-pigeon, as well as its soft "cooing," are so familiar to all who live in the country (to say nothing of Londoners, who may watch these birds in the public parks and gardens, where they become extraordinarily tame and confiding), that a very short notice will suffice. Although associating in winter in large flocks, when they are excessively wary and difficult to approach, these birds pair off in the breeding-season, when they keep entirely to themselves. The nesting-site may vary from the first fork in the trunk of some lofty beech, to a low hedge, or even a furze-bush; and the first pair of eggs is laid in June, to be followed later in the season by at least another clutch. The cock-bird takes his share at incubation—mainly in the daytime—which lasts from sixteen to eighteen days. So loosely is the nest constructed that, when placed in a bush, the glistening white eggs may be seen from below. Wood-pigeons feed as a rule upon vegetable substances, inclusive, at the proper seasons, of grain and turnip-tops, with which latter their crops may at times be found absolutely crammed. From the crop of one of these birds no less than one thousand grains of corn have been taken, from a second eight hundred grains of barley, and from a third one hundred and fifty beans and peas. Much more rarely wood-pigeons have been known to feed on snails, a specimen having been killed in winter in 1905 with its crop full of land-snails, while many years previously one was found with thirteen shells of the same kind of snail, and a third was shot in Kildare which had swallowed nearly forty marsh amber-snails. A white wood-pigeon from Scotland was presented to the British Museum in 1906.

Stock-Dove The second British representative of the group is
(*Columba œnas*). the stock-dove, which forms the type of the genus
Columba. It has very much the same geographical
distribution as the wood-pigeon, although its northward breeding-range is somewhat less, extending in Scandinavia and Russia only to about latitude 60° or 61°. On the other hand, its easterly range is considerably more extensive, reaching as far as Turkestan, Afghanistan, and Lob Nor in Central Asia. In England it is found in most places, and, like the wood-pigeon, has for some years past been steadily extending its range in Scotland, although it does not apparently reach Argyllshire or the isles. In Ireland it seems to be a recent introduction, the first record of its occurrence there being apparently in 1875,

when a pair were taken in County Down. At the present day it is stated to be resident and increasing in parts of Leinster and Ulster.

Although in the absence of a white patch on each side of the neck the stock-dove presents some resemblance to the wood-pigeon in the first plumage, it may be readily distinguished by its inferior size (length $13\frac{1}{2}$ inches), the presence of two black patches, in place of white bars, on the wings, and the pearly grey of the under wing-coverts.



MOUNTED IN THE ROWLAND WARD STUDIOS

STOCK-DOVE.

The young in first plumage lack the black patches on the wings, or have them only partly developed. The adult weighs from $12\frac{1}{2}$ to $14\frac{1}{2}$ oz., against from about 16 to 24 oz. in the wood-pigeon.

Accounts differ somewhat with regard to the habits of the stock-dove, one writer¹ stating that it is much less gregarious than the wood-pigeon, being seldom found in flocks and more often met with singly, whereas a second² observes that it is at all seasons a sociable bird, and in autumn collects in large flocks. The note is described as harsher than that of the wood-pigeon. The resorts and nesting-places of the

stock-dove vary considerably. At Ventnor, in the Isle of Wight, as well as at Flamborough Head, Yorkshire, and also in Dorsetshire, it builds on cliffs (wooded at Ventnor), and hence has been mistaken for the blue-rock. In other districts large trees, such as pollards or old ivy-clad elms, form its favourite resorts, while in the open districts of Suffolk and Norfolk deserted rabbit-burrows are chosen for the nursery. Other nesting-sites are dense furze-bushes, while rarely the deserted nest of a magpie or other large bird serves as a home for the

¹ Sharpe, *Handbook of British Birds*, vol. iv. p. 246.

² C. Dixon, *Game-birds of British Isles*, p. 7.

eggs and young. The food of this species is much the same as that of the wood-pigeon; beech-mast, acorns, and blackberries being, in their respective seasons, favourite staples. The eggs of the stock-dove are somewhat smaller than those of the wood-pigeon (from 1.4 to 1.5 inches long, against 1.55 to 1.7 in the latter), and are frequently tinged faintly with cream-colour.

**Blue-Rock or
Rock-Dove**
(*Columba livia*).

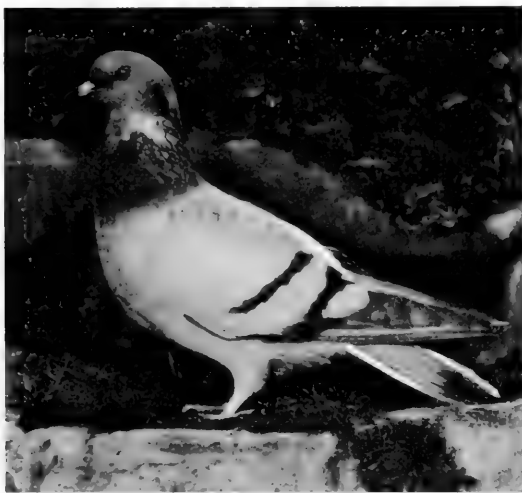
Although generally designated in ornithological works as the rock-dove, this bird is better known among sportsmen as the blue-rock, and accordingly is so called in this work. From the stock-dove it may be distinguished at a glance by the presence of two conspicuous black bars across the wings, and also by a white patch near the base of the tail and the white under wing-coverts. The hen is smaller and duller in colour than the cock; and the young in first plumage resemble the female parent, although lacking the bright metallic tints of the latter. In length the cock measures 13, and the hen $12\frac{1}{2}$ inches.

The geographical range of the blue-rock is extensive, embracing Europe and the countries bordering the Mediterranean on the south and east, Baluchistan, Afghanistan, north-western India, and perhaps some parts of Central Asia. Over a large portion of the latter area it is, however, replaced (although sometimes accompanied by) the nearly allied *C. rupestris*, which is the species commonly met with on the rocky cliffs near many of the villages between Kashmir and Leh, where it occurs in immense flocks, and affords excellent sport to the traveller, and likewise a welcome addition to his larder. It differs from the European blue-rock by the presence of a broad white band across the middle of the tail, as well as by its slightly paler colouring. A third species, or race (*C. intermedia*), which lacks the white patch at the base of the tail distinctive of the European blue-rock, inhabits south Persia, India, and Ceylon, whence it extends eastwards to China and Japan. In north-western India many blue-rocks are intermediate between the true *C. livia* and *C. intermedia*.

In Europe the blue-rock extends as far north as the Orkneys, Shetlands, and Färoes, and is also found locally in Scandinavia, breeding in all these resorts. While uncommon in the south-east and south of England, as well as in Devon and Cornwall, the blue-rock is more abundant in other parts of the west of England and in Wales, while it also breeds on the cliffs of Flamborough Head and Northumberland. In Scotland it is widely distributed, although apparently more common on the islands of Argyllshire than in the caves of the mainland; in

some of the Scottish islands it occurs indeed in vast numbers. In Ireland it is resident in the cliffs on most of the rocky parts of the coast.

The blue-rock, as its name implies, is essentially a resident on bold rocky cliffs, in the crannies and clefts of which it constructs its simple nest. Both high and low cliffs form indeed the home of this dove, but however lofty the rocks to which it resorts, the lower portions are generally chosen as nesting-sites, provided they afford sufficiently secret hiding-places. The birds nest and breed well within such caves or clefts; but while the nest may sometimes be found within a foot



MOUNTED IN THE HOWLAND WARD STUDIOS

ROCK-DOVE.

or so from the entrance to the cleft or cranny, it is more often so deep down as to be more or less completely inaccessible. In the north of Scotland the blue-rock is stated to breed during eight months in the year, nesting commencing as early as March. If the site be suitable and accommodation abundant, the colonies are often of great size. In addition to the ordinary food of pigeons, this species is said to devour large quantities of snails. The soft

cooing note may be heard from early spring till autumn. The white glossy eggs measure from 1.35 to 1.5 inches in length.

The blue-rock is a bird of special interest, as being the ancestral stock from which are descended all the European breeds of domesticated pigeons; the Oriental breeds of the latter being similarly derived from the Indian blue-rock. Among the breeds most nearly allied to the ancestral stock is the homing, or so-called carrier, pigeon, whose marvellous power of finding its way back to the spot from which it has been carried is one of the most wonderful phenomena connected with the animal kingdom. Sight certainly cannot be the means by which this bird finds the homeward track; and although it has been suggested that the sense of smell forms the guide, there are many

objections to this theory. It has been pointed out, for example, that young pigeons are frequently unable to discover the whereabouts of their own dovecot, despite the overpowering odour issuing therefrom. A more probable suggestion is that these birds are endowed with some sense of orientating their position quite unknown to ourselves.

Turtle-Dove
(*Turtur communis*). The fourth and last representative of the pigeons indigenous to the British Isles is the turtle-dove, the emblem of peace and affection; a species styled in many modern ornithological works *Turtur turtur*. The members of the comparatively large genus *Turtur* are distinguished from the typical pigeons by their smaller size, slender and graceful shape, the prevailing brown or "dove-coloured" tone of their plumage, which shows no iridescent metallic reflections, and the presence of a patch of dark feathers on the sides of the neck, or a more or less distinct black collar round the neck. In the British Museum *Hand-List of Birds* the genus is restricted to half-a-dozen representatives, but it is here used in a wider sense, comprising some thirty species, ranging over Europe and Asia. The true doves, as the members of this group may be collectively termed, have the same type of flight as pigeons, but are less gregarious, and feed on the ground, almost exclusively on grain and other seeds, while they generally resort to open, cultivated country. The nest, which is placed in a low tree or bush, consists of a thin platform of twigs and grass so loosely constructed as to permit the eggs to be seen from below.

The turtle-dove, which is the type of the whole group, has the general tone of the plumage of the upper-parts fawn-brown with a purplish tinge, and a patch of white-tipped black feathers (representing the collar of certain other species) on each side of the neck; other distinctive features being the rufous-coloured wing-coverts with black middles, and the white tips to the tail-feathers. The plumage of the male is somewhat brighter than that of his partner, but otherwise the two are similarly coloured. In the first plumage of the young the black neck-patches are absent; and the black middles to the wing-coverts (which are tipped with white) are likewise wanting. The legs, moreover, are brown instead of red. Eleven inches is the total length.

The turtle-dove is one of the host of birds which resort to the British Islands for breeding-purposes, arriving there in May, or sometimes the end of April, and departing south in search of warmer climes in September. The south-eastern and midland districts appear to form its chief resorts in this country, as it is much less common in the

extreme south-west and comparatively rare in Wales, while it visits Ireland only in very limited numbers, occurring chiefly in May and June, but also to a less extent in September, the district from Wexford to Kerry being the most noted for this bird. North of the Humber it also becomes rare, and to Scotland it is only a straggler, although specimens have been taken in the Hebrides and Orkneys. Beyond the British Islands the species ranges over a large part of Europe, and

extends eastwards at least as far as Baluchistan, Afghanistan, and eastern Turkestan; while its southern winter-range includes Africa as far south as central Abyssinia.

The habits of the turtle-dove conform generally to those mentioned above as characteristic of the group to which it belongs; but this species appears to prefer less open country than that which some of its Asiatic relatives frequent, as it is generally found in coverts and plantations, where it takes great pains to find a secure spot for its nest.

The fact that a single specimen was once taken in Yorkshire affords no valid claim to the inclusion of the rufous turtle-dove (*Turtur orientalis*) in the



MOUNTED IN THE ROWLAND WARD STUDIOS

TURTLE-DOVE.

British list. Neither can the passenger-pigeon of America (*Ectopistes migratorius*) be thus honoured, despite the fact that at least five individuals have been taken on our shores, although it is doubtful if any one of them arrived there by its own unaided efforts.

Water-Rail (*Rallus aquaticus*).

With the shy, skulking, and seldom-seen water-rail, we come to the first and typical representative of the fourth "order," or suborder, of British birds, which is therefore popularly known as the rails, and scientifically as the Fulicariæ (from the technical name of the coot), or, sometimes, as the Ralliformes. It should be mentioned, however, that the rails are sometimes grouped with the herons and bustards, under the name of

Grallæ. To give in a popular manner the distinctive characteristics of the rails is a very difficult matter, as these are largely based on features not displayed externally. It must accordingly suffice to state that these are mostly of slim build and skulking habits, with sober-coloured plumage, regularly oval nostrils, a tufted oil-gland, after-shafts to the feathers, and active, down-clad young, able to run or swim as soon as hatched. The eggs are numerous, and generally marked with a superficial and a deep layer of spots, although they may be uniformly



MOUNTED IN THE ROWLAND WARD STUDIOS

WATER-RAIL.

white. As these characteristics do not suffice to distinguish the rails from the game-birds, it is necessary to mention that in the former group there is only a single notch on each side of the breast-bone, in place of the two similarly placed notches found in the latter. It may be added that in the present group the feet are four-toed, with the hind-toe raised slightly above the level of the others; and the beak is generally short, although longer in the water-rail.

The length of the beak is indeed the most distinctive feature of the water, or typical, rails, which form a large and almost cosmopolitan genus, and quite sufficient to distinguish them from all other members of the group.

As regards the water-rail itself, this species ranges over a large

part of Europe, and western and Central Asia, migrating to a certain extent in winter to north Africa and north-western India; but a large percentage winter in the summer-haunts, even as far north as the Shetlands, although this is rare. In Norway the species is permanently resident as far north as Bergen, as it also is in Iceland. Where conditions are favourable to its existence, the water-rail breeds throughout Great Britain, and the same may be said with regard to Ireland. In eastern Siberia, China, and Japan its place is taken by the Indian water-rail, which winters in India and Burma, and is readily distinguished by the presence of a broad brown stripe through each eye.

The most distinctive feature of the water-rail, which measures $11\frac{1}{2}$ inches in length, is the long red beak. As regards general colour, the upper-parts are olive-brown streaked with black; the sides of the head, neck, and breast dark lead or bluish grey; the flanks black barred with white; and the abdomen pale buff. Although inferior in size, measuring $9\frac{1}{2}$ inches, the hen is similar in plumage to her partner. In winter the wing-coverts show irregular white bars, while the under-parts have the feathers edged with brown. Young birds resemble adults in winter-dress, but have the throat and breast dirty white tinged with brown and narrow white bars on the wing-coverts. The chick is uniformly black.

So shy and skulking is the water-rail that its presence in localities where it is fairly common is often unsuspected. The best chance of seeing the bird is by walking along the bank of a stream of which the opposite side is clothed with bushes, when careful watching will often be rewarded by a glimpse of a small brown object, which may easily be mistaken for a water-rat, running swiftly between the stems. Near Barnstable a pair regularly haunted a reedy ditch close to a railway, and might be seen in the evening crossing the track immediately after a train, or feeding among the reeds on the borders of the ditch, when they could be distinctly observed probing their long beaks deep into the mud in search of food. As a rule, water-rails are perhaps best seen when the herbage is low, and they are driven by frost to the neighbourhood of running water. In addition to the covert on river banks, these birds resort to the grass and reeds on the margins of pools, lakes, and marshes, where they search for food, which comprises small insects, water-shrimps, water-snails, and worms, as well as a certain quantity of vegetable substances. During the breeding-season rails utter a kind of croaking cry, known in the Norfolk Broads, where these birds are very common, as "sharming." Like all the tribe, rails are extremely difficult to flush, as they trust to their protective

colouring and their skulking habits, rather than to their wings, for safety. What proportion of British rails leave the country in winter does not seem to be ascertained. The nest is often built on a bunch of rushes, and raised to some height above the surface of the ground by layers of reeds and sedge, surmounted by a cup of broken fragments of dry rushes. The eggs, which are laid in April or May, and are usually from five to seven, but occasionally reach as many as nine or eleven in number, are generally oval in shape, and vary considerably in their degree of glossiness. The colour is delicate pinkish cream, spotted with reddish brown and pale purple, these markings being thickly crowded at the large end, but elsewhere sparse. A second clutch appears to be often laid in summer.

**Corn-Crake
or Land-Rail
(*Crex pratensis*).**

The harsh rasping cry from which the corn-crake takes its name is a sound much less familiar in summer to those of the present generation who live in the country than it was to their parents, as these birds are much scarcer than formerly. By Linnæus the corn-crake was included in the same genus as the water-rail, under the name of *Rallus crex*, and by many ornithologists it is accordingly termed *Crex crex*, in place of *Crex pratensis*, which is a far more euphonious name. According to modern views, it is the only representative of its genus, which is sufficiently distinguished from the water-rail, on the one hand, by the shortness and stoutness of its beak, and from the moorhen, on the other, by the absence of a fleshy shield at the root of the beak.

The corn-crake is a migratory species, ranging from Europe through western and Central Asia as far eastwards as the Yenisei valley in Siberia, and visiting northern Africa in winter, while stragglers have been known to wander as far as America and Australia, and in summer to reach Greenland. In Great Britain it is to be found everywhere, although, as already said, much less abundantly than in former years, ranging, and apparently breeding, as far north as the Hebrides, Orkneys, and Shetlands. It is equally widespread in Ireland, where it occasionally remains during winter. It may be added that a pair were killed in Mull some years ago at the end of December.

Measuring about $10\frac{1}{2}$ inches in length, the corn-crake is pale brown in colour above, with dark middles to the feathers, while the under-parts are dark buff, passing into white in the middle of the abdomen, and barred with reddish brown and white on the flanks.

In summer a streak above the eye, the ear-coverts, and fore part of the neck are ashy grey, and the wing-coverts bright chestnut faintly barred with white. Adults in winter, and young birds in first plumage show no trace of ash-grey, while the young are further distinguished by having fewer bars on the flanks. Hens are distinguished by their smaller size, measuring only 9 inches in length. The chick is uniformly black, the black down of the breast being retained till the feathers of the upper-parts are nearly complete.

The times of arrival and departure of the corn-crake coincide very closely with those of the quail, and, as mentioned under the head of that species, there is an idea prevalent in southern Europe that each



MOUNTED IN THE ROWLAND WARD STUDIOS

CORN-CRAKE.

migrating bevy of quail is headed by a corn-crake. Grassy meadows, especially near water, cornfields, and osier-plantations are the favourite haunts of the corn-crake, whose presence during the breeding-season is revealed by its cry, which is said to be of a ventriloquial nature, sounding near or distant according to the will

of the bird. The possession of this ventriloquial power has, however, been disputed by some, who urge that the difference in the location of the sound is real and not apparent, and due to the rapid movements of the bird itself. The cry, it seems, is uttered by the cock alone. When flushed, as sometimes happens in early partridge-shooting, corn-crake fly with a heavy laboured flight and drooping legs, soon to drop into the clover or other covert, from which they can seldom be induced to rise a second time. Like the water-rail, the corn-crake is an omnivorous bird, feeding on insects, worms, snails, slugs, and seeds. Restless and roving on arrival, the cock soon after arrival selects a mate, when the pair lead a more settled life. The nest, which some describe as a simple, and others as an elaborate structure, is built of plant-stems and placed on the ground amid standing grass, clover, or young corn. During the early part of June, as a rule, the hen lays in this receptacle

from seven to ten broadly oval eggs, of a creamy white or pale buff colour, indistinctly marked with small pale purple blotches, and specks, spots, and streaks of reddish brown, most numerous at the large end. The eggs measure $1\frac{1}{2}$ inches or rather less in length; and the adult bird generally weighs about 6, although it may scale 8 or even 9 oz.

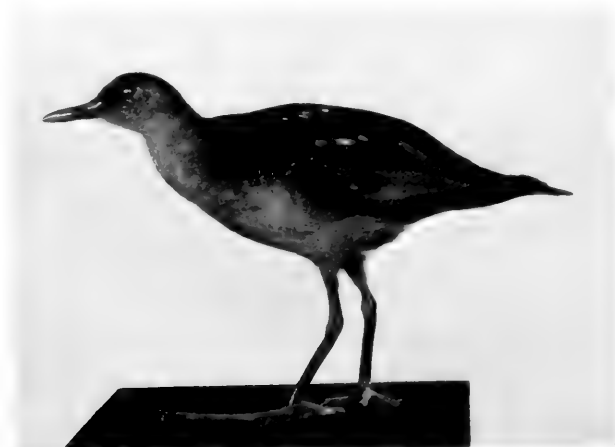
A corn-crake brought in by a dog many years ago was observed to feign death, not only when in the dog's mouth, but when carried home in the owner's pocket; and when a suitable opportunity occurred the bird suddenly woke up and made off at top speed. It does not appear that this remarkable instance of the death-feigning instinct has ever been confirmed by subsequent observation. One other incident is worth repeating. Years ago a corn-crake was decapitated by the scythe, and her eggs were consigned to the care of a partridge sitting upon eighteen of her own eggs, who brought up and tended the whole of the double brood! A white corn-crake is on record.

Little Crake Although the little crake, on account of the rather
(*Porzana parva*). shorter secondary quills and a slight difference in
the colour of the two sexes, has been made the
type of a genus by itself, under the name *Zapornia parva*, it seems
best included among the spotted crakes, which form a group of small
species characterised by the beak being relatively shorter and the
middle toe longer than in the corn-crake, as well as by the brown back,
grey or greyish breast, and the presence of a larger or smaller amount
of white spotting. The spotted crakes, in this extended sense, include
rather less than a score of species, with cosmopolitan distribution;
the range of the present species extending from south and central
Europe to Central Asia, and in winter to northern Africa and Sind
and Quetta.

The absence of numerous white spots, and of white on the outer web of the first primary quill, serves to distinguish this species from the undermentioned Baillon's crake, with which it agrees in size. The upper-parts are olive-brown, variegated on the back and scapular region with broad black middles and short white streaks on the feathers, although the wing-coverts are uniformly coloured; the sides of the face, throat, neck, and the under-parts generally are bluish grey with a few white bars on the flanks, and the under tail-coverts white barred with black. The hen differs from the cock mainly by the buff under-parts; while young birds may be distinguished from hens by the white

barring of the scapulars and white lower surface. The chick is black with green reflections.

The little crane, which may be roughly compared to a diminutive corn-crake with a few white streaks on the back, is a rare visitor to England, appearing chiefly in the spring and autumn migrations, although it is possible that an occasional pair may stay to breed, and it is stated to have been taken in winter. As with so many of our rare migrants, Norfolk is the county where this species is most frequently seen, but it has been taken as far west as Devon, Somerset,



MOUNTED IN THE ROWLAND WARD STUDIOS

LITTLE CRANE.

and Cornwall, and as far north as Yorkshire. A bird referred to this species was once taken in Scotland, and there is one record of its occurrence in Ireland. The eggs of the little crane are of an unusual type of colouring, having a buff or yellowish ground, almost completely concealed by markings of various shades of reddish brown. In habits the little crane is essentially a marsh-bird, which in countries where it is abundant may be seen running over the leaves of water-lilies, in search of water-insects and larvæ. It can swim, and has a comparatively strong flight. The weight of this species, like that of the next, is only 2 oz.

Baillon's Crake
(*Porzana*
intermedia).

Although apparently at least as rare a visitor to Britain as the preceding species, Baillon's crake (*Porzana bailloni* of the older books on British birds) is recorded to have bred several times in Norfolk and the Cambridgeshire fens, and its claim to a place in the British list is therefore, on this ground alone, if the eggs were rightly identified, indisputable. It has been taken once in North Wales, near Conway.

The species ranges locally over a large portion of central and southern Europe in summer, and in winter travels south to Africa



BAILLON'S CRAKE.

(From a specimen in the British Museum.)

and Madagascar, and probably the Persian Gulf. In eastern Europe it is, however, replaced by the closely allied *Porzana pusilla*, which is a common bird in India and Burma during the cold season. The species is chiefly a spring and summer visitor to Britain, although examples are stated to have been taken in almost every month of the year. While one writer¹ states that it is found chiefly in the southern counties of England, although it has also been recorded from Derbyshire and Yorkshire, a second² observes that it is almost entirely confined to the eastern counties, and a third³ remarks that it is less common in Norfolk than elsewhere. Whatever may be the truth with regard to this point, it appears that the species has been recorded once from

¹ Sharpe, *Handbook of British Birds*, vol. iv. p. 233.

² Harting, *Handbook of British Birds*, p. 223.

³ Saunders, *Yarrell's British Birds*, vol. iii. p. 155.

the Isle of Man, and twice from both Scotland and Ireland, an alleged third occurrence in the last-named island having been based on a wrong identification.

In Baillon's crake, which measures 7 inches in length, the outer web of the first primary quill is white. The beak is green with the base red; the crown of the head, back of the neck, and upper-parts are chestnut-brown, varied on the back and scapular region with broad streaks of black and small flecks of white; the cheeks, throat, and breast bluish grey, and the flanks black barred with white. The hen differs from the cock in having the under-parts paler, and the wing-coverts more spotted. In young birds the under-parts are dull white, and the chest is tinged with rufous and barred with dusky bars. The chick is glossy black, with a yellowish beak and greenish slate-coloured legs.

The eggs, of which there are usually from six to eight in a clutch, are practically identical in colouring with those of the little crake, although of rather smaller size. An egg from Cambridgeshire referred to this species is in the collection of the British Museum. In general habits this species is very similar to the little crake, although it is more frequently found among reeds and rushes.

Spotted Crake
(*Porzana*
maruetta).

As being the *Rallus porzana* of Linnæus, the spotted crake, which is a larger bird than either of the two last, weighing from $4\frac{1}{2}$ to 5 oz., figures in those ornithological works where the repetition system of nomenclature is adopted as *Porzana porzana*. Although at the present day, owing to the draining of the fens, it appears to be far less common than formerly, the spotted crake was once a regular visitor to Britain, and bred not only in the Norfolk Broads and the Cambridgeshire fens, but likewise in the marshes bordering the lower part of the course of the Thames. Its summer-range includes Europe and western and Central Asia, while its winter-resorts are North Africa and India. In Britain there are records of its having nested as far north as Durham, Northumberland, and even Elgin and Dumbarton, while stragglers have been recorded from the Orkneys and Shetlands. To Ireland, where it has bred in Roscommon, and probably also in Kerry, it is described as being a rare visitor, chiefly in the autumn months.

As regards its colouring, the spotted crake, which measures 9 inches in length, has the feathers of the upper-parts olive-brown, with black middles to those of the back and shoulders, thus presenting

a blotched appearance, varied on the back by white spots and streaks, and by irregular bars on the wing-coverts; the crown of the head and sides of the neck are uniform dark brown; a stripe over the eye is buff; the sides of the head and throat are dull brownish grey; the neck and adjacent parts are marked with white spots, which increase in size on the breast, and take the form of irregular bars on the flanks; while the abdomen is white. The hen is distinguished by her inferior size and somewhat duller colouring. The difference between the summer and winter plumage of both sexes is slight. In young birds the spots are



MOUNTED IN THE ROWLAND WARD STUDIOS

SPOTTED CRAKE.

more numerous, and the dark middles of the feathers of the upper-parts less conspicuous. The chick is uniformly black.

Although essentially a marsh-bird, this species keeps more to covert, such as beds of reeds or rushes or bushes, than is the case with the little crake, and is consequently but rarely seen, even in countries where it is far from uncommon. The eggs vary in ground-colour from pale to reddish buff, or even pale greenish white or stone-colour, and are marked with specks, spots, and small blotches of faint purple and maroon-brown.

The occurrence many years ago of a single individual of the Carolina crake (*Porzana carolina*) in Berkshire affords no justification for regarding that species as a British bird, and it would be well if the incident were consigned to the oblivion it merits.

**Moor-Hen or
Water-Hen**
(*Gallinula
chloropus*).

The moor-hen, which is to be seen on the ornamental waters of the London parks in considerable numbers, is to a great extent intermediate in habits between the water-rail and the coot, passing much of its time in the water, but not keeping so much on open sheets as the latter. It is the typical representative of a practically cosmopolitan genus, containing some seven or eight species, all characterised by having a red leathery saddle at the base of the beak, which contrasts strongly with the dull-coloured plumage. A second

distinctive feature of the group is that the long toes are bordered by a narrow fringe of skin or membrane on each side.

Except for the brilliant beak and legs, the tone of colouring of the moor-hen is generally sombre, the upper-parts being olive brown, and the lower surface slaty grey. There is, however, a conspicuous white bar on the wing, and the under tail-coverts are white, while the feathers of the flanks are white-



MOUNTED IN THE ROWLAND WARD STUDIOS

MOOR-HEN.

edged and tinged with brown. As regards the bare parts, the legs are greenish yellow, with a red garter above the first joint; the beak is yellow at the tip and red at the base; while the saddle on the forehead, although green in immature birds, becomes bright red in the adults. In young birds the lower surface of the body is white, the back greyish, and the beak and legs dull green. The chick is black.

In conformity with the wide range of the group to which it belongs, the moor-hen has a very extensive geographical distribution, greater perhaps than almost any other non-migratory British bird. It is found, indeed, over the greater part of Europe, Asia, including the whole of India, Ceylon and Burma, and Africa, together with the islands of Madagascar and Mauritius. Although, as already said, it is a resident

rather than a migratory species throughout its distributional area, yet in severe weather, alike in Europe and Asia, a partial migration to the southward takes place among those birds inhabiting the northern zone of its range. Despite its extensive range, the moor-hen does not indeed reach very far north, its limit in Scandinavia being about the 63rd of latitude, and in Russia the south of the St. Petersburg district; this limitation being doubtless due to the necessity of obtaining access to open water during the winter. As the species is distributed, in suitable localities, throughout the British Isles, no details on this point are necessary.

In the case of such a thoroughly familiar bird a very brief reference to the matter of habits will likewise suffice. It may be specially mentioned, however, that the name moor-hen, as we now know it, is a misnomer for a bird which is essentially a denizen of rivers, lakes, marshes, and ponds, and that the title water-hen would be preferable were it not equally applicable to the coot. The misnomer, as in so many analogous instances, is, however, due to a corruption, the proper signification of the term being meer-hen.

The jerky swimming of the moor-hen is well known, as is also its heavy, lumbering flight with the legs pendent; when running on land the tail is raised, and the white tail-coverts are exposed, perhaps to serve as a guiding signal for the members of a family. In this connection it may be mentioned that the red and yellow beak and legs of this bird probably harmonise with the red and yellow flowers of the rushes and other water-plants among which it dwells. As in the case of other members of the family, the diet of the moor-hen comprises a mixture of vegetable and animal substances, among which seeds of all kinds, together with water-insects, snails, and worms form important items; but the charge of devouring fishes seems disproved. The diving powers of the moor-hen are well known, and the writer has seen one of these birds, when wounded, thrust itself into a bunch of water-weeds near the bank, a foot or so below the surface, where it would have apparently remained till drowned, had it not been pulled out. The nest is a bulky structure of reeds, flags, and other water-plants, which may be built either on land or among reeds in the water. Apparently several nests are often built about the same time by a single pair of birds, and many instances are on record where moor-hens, when their nests have been flooded, have safely removed their eggs to a place of safety. The first clutch of eggs is generally laid in April, and others are deposited later on, the usual number in a clutch varying from seven to nine. In ground-colour the eggs vary

from stone-buff to reddish clay ; and upon this they are spotted with reddish brown, tending sometimes to blackish, the spots being always small, and in some cases reduced to mere specks. In length they vary between rather more than an inch and a half, and just over two inches.

In describing a late brood of young moor-hens hatched near Sheffield an observer states that the nest was built on a bunch of holly branches fastened in the middle of the pond ; and that the members of the earlier broods would come and visit their younger brethren. No objection to this was taken by the parents, and on one occasion the two parents, a full-grown chick, and the nestlings were seen together on and in the nest, while two immature birds were swimming round.

A peculiar phase of the moor-hen in which the feathers were so slender as to recall hairs has been recorded. More common, although decidedly rare, are pied and other semi-albinos, but pure albinos seem to be unknown. Of such pied moor-hens two examples are exhibited in the British Museum, in one of which the arrangement of the black and white is very symmetrical, and forms a strikingly handsome combination. In a third example, killed near Ringwood, in Hampshire, the head, neck, and breast were of the normal dark hue, but from the shoulders to the tail there was more black than white, with the underparts and some of the wing-quills wholly white, one of the wings displaying the remarkable peculiarity of having the quills alternately dark and white.

Here it may be well to notice that stray specimens of the beautiful purple water-hens (*Porphyrio*) have been occasionally taken in British inland waters, but there is little doubt that in all such instances the birds had escaped from confinement, and even if this was not so, their names could have no possible right to cumber the British list.

Coot
(*Fulica atra*).

In the great majority of works on British birds this species is entered as the "common coot," but as a matter of fact, at all events when dealing with the fauna of our own islands, it requires no such prefix, as to it alone the name "coot" properly applies. It is the foreign species of *Fulica*, of which there are about a dozen, ranging over the warmer parts of the whole world, that require distinctive prefixes. While they have a somewhat similar leathery saddle at the base of the beak, the coots differ from the moor-hens in that their long toes are fringed on each side by a broad flap of skin or membrane, which is divided into convex lobes, corresponding in number with the joints, and likewise by

the presence of a similar fringe on the hind border of the lower part of the leg. The dark grey or blackish hue of the plumage is also a distinctive feature of these thoroughly aquatic representatives of the rail tribe.

Unlike the moor-hen, the coot is unknown to the south of the Mediterranean, but it inhabits the greater part of Europe, nesting in Scandinavia as far north as latitude 70°, and occasionally wandering to Iceland, or even Greenland; in Asia it extends as far east as China, the Philippines, and Celebes, being common in all parts of India and Burma where there are pieces of water large enough and sufficiently well furnished with plants to suit its habits, although it appears to be unknown in Ceylon. In some parts of India it is resident, but in others appears only in the cold season. A bird so easily recognised scarcely requires description. It may be mentioned, however, that 15 inches is the usual length, and that while the saddle on the forehead is white, the beak is pale flesh-colour, and the legs are dark green with a yellow garter above the first joint. Crimson eyes form a brilliant contrast with the dark slaty grey of the plumage of the upper-parts, relieved by a white wing-bar; the feathers of the lower surface being full black. Hens are distinguishable from cocks by their inferior dimensions; young birds differ from their parents by their brown backs and paler breasts, and the smaller size of the saddle; while the black chick has bright red nodules of bare skin studding the head.

Frequenting large sheets of water more or less surrounded by and covered with aquatic vegetation, and avoiding the small ponds in which a pair of moor-hens will frequently take up their quarters, the coot is to be found throughout all parts of the British Islands where such conditions are to be met with. Poole Harbour, in Dorsetshire, is a



MOUNTED IN THE ROWLAND WARD STUDIOS

COOT.

favourite resort for these birds, which flock there in winter when driven by intense cold from the more northern parts of the country; the species, like so many other British birds, being a partial or local migrant. In the north of Scotland coots cannot be described as common, although on some of the lochs farther south they are occasionally seen in considerable numbers. In Ireland, although more local than moor-hens, coots breed in every county, in some cases in great numbers.

In general habits these birds much more resemble ducks than the other members of the rail tribe, swimming in open waters for hours at a time. In some of the large Indian lakes, or "jhils," coots may indeed be numbered by thousands, and absolutely blacken the water. Unfortunately the flesh is so rank and fishy as to be unpalatable to most persons, so that the bird is usually unmolested by sportsmen, which may be one reason for its extraordinary abundance. In spite of their numbers coots do not, however, keep in large flocks, after the manner of ducks. When once on the wing, they fly strongly and well; and at all times, but more especially in the breeding-season, keep up a kind of cackling cry. The food of these birds is similar to that of the moor-hen and the aquatic crakes. When unable to find water on which to pass the night, coots are said to roost in trees. The nest is a huge mass of green rushes and water-weed, placed among weeds, at times in quite shallow water, but on other occasions freely floating. The eggs, of which the first clutch is usually laid in May, generally range from seven to ten, or even twelve, in number, and vary in ground-colour from cream to pinkish buff, with a number of minute round specks and small spots of pale purple and blackish brown. In length they vary from $1\frac{3}{4}$ to $2\frac{1}{4}$ inches. White and pied specimens of the coot have been several times recorded.

Crane
(*Grus communis*).

With the stately crane, which, although formerly resident and a breeder in East Anglia, is now only a very occasional visitor to our shores, we come to the first representative of a group of birds in regard to the systematic position of which very different views are entertained. By some the rails, cranes, and bustards are placed in a single group, under the name of Grallæ. By others the cranes and certain other birds are regarded as forming a group widely sundered from the rails (the sea-birds being indeed placed between them), and also separated from the bustards, which are placed with the plover. Others, again, group the cranes and bustards together, with the name *Alcetorides*; and this

course is followed here, except that the name *Grallæ* is adopted in place of the alternative term. It should be added that the cranes and the bustards differ from one another almost or quite as much as each does from the rails, and consequently that it is practically impossible to give a definition, based on easily apparent characters, which will differentiate the *Grallæ* as a whole from the *Fulcariæ*. Taking the cranes and their immediate allies (two American families with which we have no concern here) first, we find that they differ from the rails by the nostrils having the form of long narrow slits, and by the absence of any notch in the lower border of the breastbone. On the other hand, they resemble the former group in their tufted oil-gland and active, down-clad young.

The cranes themselves, constituting the family *Gruidæ*, are tall and stately birds, generally grey or white in colour, with long beaks, necks, and legs, the nostrils opening in a long deep depression, twelve tail-feathers, small after-shafts to the feathers, long bare patches on the sides of the neck, and active, down-clad young. Most of the species may be included in the genus *Grus*, of which the crane, *Grus communis*, otherwise *Grus cinerea*, or *Grus grus* is the typical representative.

The crane, of which a very brief notice will suffice, is a migratory species, breeding in northern Europe (inclusive of Lapland) and Asia, and wintering in southern Europe, northern Africa, south-western Asia, northern India, and China. Its visits to the British Islands are



MOUNTED IN THE ROWLAND WARD STUDIOS

CRANE.

now few and far between, but ancient records indicate that it was formerly common, and that it bred in the fens of the eastern counties till about the close of the sixteenth century, and probably also in Ireland, although in the records of the latter country there may be some confusion between this bird and the heron. The occurrence of its bones in prehistoric refuse-heaps at Ballycotton, Cork, affords, however, presumptive evidence that the crane was at one time a regular inhabitant of Ireland.

As the ornithologist of the present day has no likelihood of seeing this bird wild in Britain, detailed description of its plumage would be superfluous. It may be mentioned, however, that the general colour is ashy grey, although the sides of the head and neck are white; and that the inner secondary quills of the wings are elongated into long slender plumes, which attain their full development only in the cock; while the crown of the head of the adult carries a red, warty patch. The chick is buff, darker above than below.

Two or three isolated records of the occurrence of the demoiselle crane (*Anthropoides virgo*), and the African crowned crane (*Balearica pavonina*) in Britain, are not improbably based on specimens escaped from captivity, and, in any case, are not worthy of further mention.

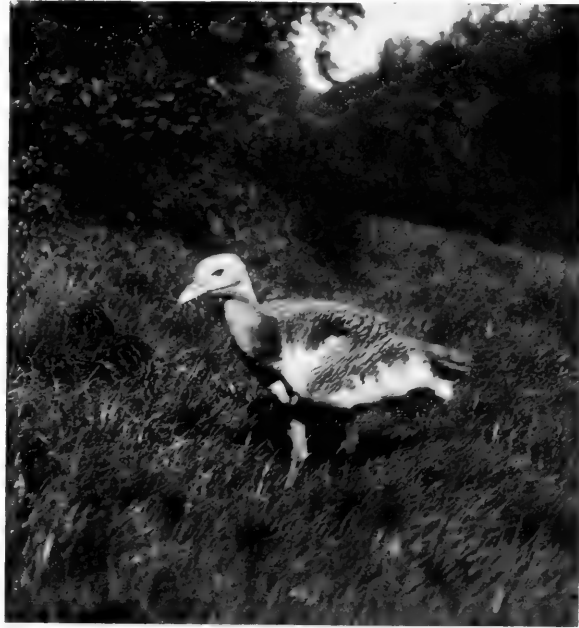
Bustard
(*Otis tarda*).

The *avis tarda*, or *bustard*, is another splendid bird which has disappeared from the resident British fauna, although at a much later date than the crane; and such efforts as have been made to re-establish it in its ancient haunts have hitherto proved unsuccessful, nor is it likely, from the open nature of these haunts, that similar attempts in the future will be attended with better results. Bustards form apparently a group with complex affinities, connecting the rails and the cranes on the one hand with the plovers on the other, although their relationship with the cranes seems, on the whole, to be the closest. They resemble, for instance, the rails in having oval nostrils, but differ from both these and the cranes in the absence of the oil-gland and the hind-toe, and also in the presence of two notches in the lower border of the breast-bone, in which respect they agree with some of the plovers. They further differ from the cranes in having no bare patches on the sides of the neck, and in possessing from sixteen to twenty tail-feathers. Possibly the remarkable nuptial display of the cock-bustard may be nearly connected with the nuptial dances of the cranes. The young are hatched covered with down, and capable of running immediately after leaving the egg. In laying but two or three eggs at a time, both

cranes and bustards differ markedly from the rails, and come much nearer the plovers.

As indicated by their name, bustards are birds of heavy build and slow flight, with a comparatively short beak and moderately long neck and legs; the latter placed, in the standing posture, nearly at right angles to the axis of the body, with their lower part naked for some distance above the first joint. The two indigenous British representatives of the group may be included in the typical genus *Otis*, in which there is no ruff on the sides of the neck, the sexes differ in size or in breeding-plumage, or in both characters together, and there is no distinct crest in the females and males out of the breeding-season.

Although by no means the tallest, the bustard is the bulkiest of British birds, fully adult cocks weighing as much as 30 lbs. and measuring about 42 inches in length. The cock has a tuft of long bristly feathers springing from the sides of the head, and



BUSTARD.

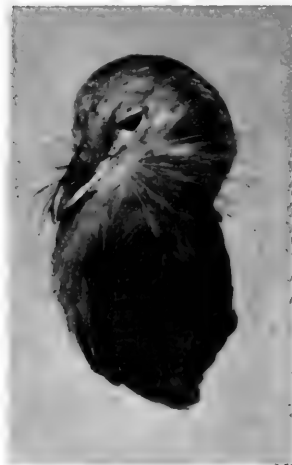
in the breeding-season develops a long pouch on the throat, which can be blown up with air through a small aperture opening under the tongue. The general colour of the plumage of the upper-parts is ochery yellow barred with black; while the wings, with the exception of the brownish primary quills, are white; and the breast shows a conspicuous gorget of rich chestnut and grey, the rest of the under-parts being white. The hens, which are much smaller than their lord and master (for the bustard is a polygamous bird), have no head-bristles, and likewise lack the chestnut gorget. Young birds are like the hens; and the chicks in down are tawny mottled with dark chestnut, the mottlings being

evidently derived from obsolete stripes. A cock bustard, in full breeding-dress, with his head drawn in and his plumage ruffled up so as to display the white under-feathers, as is his practice when showing off before the hens, is a truly magnificent, if somewhat ridiculous, sight.

The distributional range of the bustard includes southern and central Europe and North Africa, together with Central Asia, as far east as China. The species was never a native of Ireland, although a wanderer was recorded in County Tipperary in 1903, and it has always been only an occasional straggler to most parts of Scotland, although resident in the lowlands of Berwickshire and other border districts. In England its headquarters were the Yorkshire and Lincolnshire wolds, the open heathy districts of East Anglia, and the downs of Dorsetshire, Wiltshire, northern Hertfordshire, and southern Cambridgeshire, Berkshire, Hampshire, and Sussex. For the history of the extermination of the species in Great Britain the reader must refer to other works, and it will suffice to state that while these birds disappeared from Berwickshire about the year 1526, they lingered on Salisbury Plain till the early years of the last century, on the wolds of eastern Yorkshire till about 1832, and in Norfolk and Sussex for some little time after 1838, about which date the last fertile eggs were taken. When they disappeared from the downs of the other counties

mentioned above there is no record. Bustards have twice been recorded in North Wales. Nowadays, bustards are met with only as occasional visitors, which for the most part resort to the eastern and southern counties, where they generally meet with the reception usually accorded to feathered strangers.

As may be inferred from what is written above, the bustard is a polygamous bird haunting open countries, and spending its time on the ground, or, rarely, on the wing. While in summer the adult cocks consort with their own party of hens, in winter the scattered families collect in large droves, as do immature birds at all seasons. At the commencement of the breeding-season, which takes place in April or May, according to latitude, the cocks fight among themselves for



MOUNTED IN THE ROWLAND WARD STUDIOS
HEAD AND NECK OF COCK
BUSTARD.

the possession of the hens. Here it may be mentioned that some doubt has been expressed as to whether the species is really polygamous ;

but the fact that hens are certainly more numerous than the cocks renders it practically certain that this is very generally the case, although there may be exceptions. The food of the bustard is chiefly of a vegetable nature, green corn being, in its season, a special favourite; but this diet is varied with worms, beetles, lizards, etc. The nest, which may be placed either on the open down or heath, or among growing corn, is little more than a slight hollow scratched or trampled in the ground. In this are laid the two, or occasionally three, eggs, which measure about 3 inches in length by 2 in breadth, and vary in colour from olive-green to olive-brown or buff with spots and blotches of reddish brown and grey. In their coarse structure and numerous pores they resemble crane's eggs. The only British-laid bustard's egg in the British Museum is one from Wiltshire, formerly in the possession of the celebrated ornithologist, Colonel Montagu.

Little Bustard
(*Otis tetrax*).

The little bustard, which is the second and only other representative of the type genus of the family, is sometimes referred to as a genus by itself, under the name of *Tetrax campestris*, or *Tetrax tetrax*, owing to the circumstance that the cock has no bristle-like feathers on the sides of the head, but, on the other hand, the nape of the neck is ornamented with a crest of long feathers in the breeding-season. It is a much smaller bird than the last, measuring only 17 inches in length. In breeding-plumage the cock has the lower part of the neck black, with two broad white collars, of which the upper one forms a V-shaped loop. This and its small size are amply sufficient to distinguish the species, which is, however, further characterised by the plumage of the upper-parts being pale chestnut-brown, variegated with fine irregular black lines, with the wing-coverts and bases of the primary quills white, and the inner quills mingled black and white. In winter, on the other hand, the bird assumes a much



LITTLE BUSTARDS.

less striking dress, the black patch and white collars of the neck being replaced by sandy brown, streaked with black. The plumage of the hen is of the same sombre type, while that of the young birds shows more dark bars on the flanks. The chick in down is pale fawn, with blackish-brown markings above, and dull white beneath.

Some fifty instances of the occurrence of this bird in the British Islands are recorded, of which six are to be credited to Ireland; but it has never been known to breed there, winter being the season when most of these instances occurred. The little bustard is a migratory species inhabiting the south of Europe, the north of Africa, and Central Asia, visiting north-western India in winter, and occasionally straggling as far north as Scandinavia and St. Petersburg.

The occurrence between the years 1847 and 1898 of five recorded visits of the hubara bustard (*Hubara macqueenii*) to the British Islands affords no sufficient grounds for including that species in the British list.

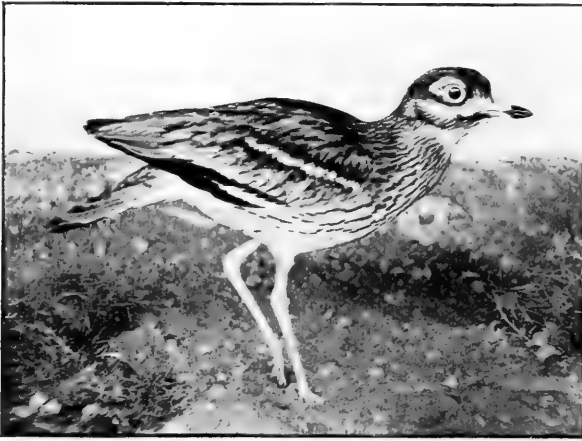
**Stone-Curlew
or Thick-Knee
(*Edicnemus*
scelopax).**

With the stone-curlew or thick-knee, which in some modern works appears as *Edicnemus edicnemus*, and in older ones as *Edicnemus crepitans*, we come to the great group of plovers, snipes, etc., constituting the Limicolæ, or Charadriiformes, as they are sometimes called. The group, like the last, is one exceedingly difficult to define, since it is closely connected, on the one side by means of the stone-curlews with the bustards, while on another it is affiliated through the plovers with the sand-grouse, and so with the pigeons, and in a third direction it is related very closely with the gulls, which are themselves probably distant relations of the pigeons.

All the members of the plover tribe are birds of more or less completely terrestrial habits, with the beak very variable, but generally slender, and having the nostrils situated in a groove or hollow on each side. With the exception of the stone-curlews and one of the coursers, where they are oval, as in the bustards, the nostrils are slit-like; and with few exceptions, the leg is naked for some distance above the first joint. Except in the stone-curlew, the feathered tract on the fore part of the back is forked; the feathers are furnished with after-shafts of varying size; there are eleven primary quills to the wings, as in the Grallæ; there is a tufted oil-gland, which distinguishes them from the bustards; and the intestine is furnished with a pair of blind appendages. As a rule, there is one notch on each side of the lower border of the breast-bone, although there may be two; and by this character the group is

distinguished from the cranes. The young are down-covered, and able to run as soon as they leave the egg-shell. Important characters are afforded by the eggs, which are never more than four in number, are always laid on the ground, and, with two exceptions, are double-spotted, like those of the rails and gulls. Among the plovers and sandpipers the eggs are pear-shaped like those of gulls, while in other species they are oval, as in the rails, in which group the number in all cases is, however, in excess of four.

It is interesting to note that in a large proportion of the British members of the group possessing a distinct winter and summer plumage (apart from those like the golden plover, which have developed a



MOUNTED IN THE ROWLAND WARD STUDIOS

STONE-CURLEW.

special black dress) the seasonal change of colour is precisely analogous to that occurring among mammals, such as the roebuck and the Virginian deer, namely, from chestnut or rufous brown in summer to grey or olive in winter.

To take only a few of the most strongly marked instances, the dotterel loses in winter the bright chestnut of its lower-parts in the breeding-plumage; while the chestnut summer-markings of the turnstone are also lost in winter. Still better instances are afforded by the two British species of godwit in which the summer-livery of red is replaced in winter by one of greyish brown; a somewhat similar change also taking place in the red-breasted godwit. Again, the sanderling exchanges its mottled chestnut and black dress of summer for one of grey and white in winter. In the stint the chestnut flanks of

summer are replaced by greyish brown in winter ; while in Temminck's stint the chestnut edgings to the feathers of the summer-plumage are lost in the cold season. Similarly, the knot in summer is chestnut both above and below, while it is ashy grey in winter, and much the same is the case with the curlew-sandpiper. As another instance we may take the dunlin, in which the feathers of the upper-parts in summer are black relieved by chestnut margins, these being replaced in winter by ashy brown. The redshank shows similar changes in a less marked degree, the general tone being pale brown in summer, and ashy in winter.

Why certain wading-birds, such as snipe and woodcock, display no marked seasonal colour-change is a question difficult to answer. It may, however, be noticed that in these birds, as well as in the curlew and whimbrel, the colouring of the plumage is evidently very specialised for protective purposes. Now, it is noteworthy that representatives of the curlew, snipe, and woodcock breed within the British Islands, so that the change between the summer and winter haunts is comparatively slight or nil. On the other hand, many of the waders with a strongly marked seasonal change of plumage, such as the knot, the sanderling, the turnstone, the curlew-sandpiper, and the bar-tailed godwit, breed in the high north, and wander far south in winter, so that the difference between their winter and summer surroundings is enormous. It is, therefore, at least a plausible supposition that their seasonal colour-changes are connected with their migrations, and that they are, in fact, analogous to the changes of this nature which occur in many mammals of the temperate regions, but are unrepresented among tropical species, whose physical surroundings are more or less similar throughout the year.

In connection with this subject it may be mentioned that in America certain tanagers and bobolinks, which had been prevented from breeding, were kept during autumn in a darkened chamber with a somewhat increased supply of food. The consequence was that the brilliant breeding-plumage was retained throughout the winter. Early in the following spring the birds were returned to normal conditions, and speedily moulted. The new plumage was, however, the nuptial dress, and not the dull winter livery, which was skipped. The sequence of plumage-change is not, therefore, invariable, but evidently in some degree dependent on external factors in the environment.

The stone-curlew, or Norfolk plover, as it is commonly called, is the typical representative of the family *Œdicnemidæ*, all the members of which have a strong superficial likeness to bustards, with which they

agree in the oval form of the nostrils, and the presence of only three toes to each foot. In this bird, which averages about 16 inches in length, the sexes are indistinguishable, so far as plumage is concerned, the general colour of the feathers of the upper-parts being pale brown streaked with black. The lesser wing-coverts are, however, marked by a broad white bar, while the primary quills of the wings are black, relieved by a pair of white spots. Another characteristic feature is to be found in the white-tipped black terminal portions of the outer webs of the greater coverts of the secondary quills of the wings, thus forming a conspicuous black bar edged with white. Buff streaked with black is the colouring of the neck and breast. Immature birds differ by their duller tone of colouring and dark-barred tail. In the down-clad chick the general colour is greyish buff, with a narrow black line running down each side of the neck and the ridge of the back, a black band along each flank, and a dark stripe and horseshoe-like mark on the forehead.

A native of the breezy upland heaths, downs, and bare stony plains (which latter form in many parts of the world its favourite resorts), the stone-curlew is a resident or migratory species, whose geographical range extends from central and southern Europe and the north of Africa, through south-western and Central Asia to India, Ceylon, and Burma, where it is only a winter-visitor.

As is implied by its local name of Norfolk plover, East Anglia is one of the British strongholds of the species, which is, however, widely, although locally, distributed over the greater part of England, breeding not only in the eastern, but likewise in the southern and midland counties, where the downs near Tring are a favourite resort. North of Yorkshire the stone-curlew becomes very rare, and to Scotland it is only an occasional straggler, as it likewise is to Wales, and also to Ireland, where only some half-dozen instances of its occurrence, and then in winter, are on record. In Wales a specimen was killed in Merioneth in 1903. Although a certain number of these birds remain to pass the winter-months in the mild climate of Devon and Cornwall, the great bulk of the species leave the British shores for the south in October to return with the spring in April. As a genus, stone-curlews are represented by half-a-score of species or races, whose geographical range, in addition to that of the typical species, includes the whole of Africa, together with Central, and a considerable part of tropical, South America. The complete absence of the group from North America is a somewhat remarkable circumstance in geographical distribution.

Three specially noteworthy features may be mentioned in connection with the stone-curlew, namely, the perfect manner in which its plumage harmonises with the colouring of a bare stony plain, the large size of its full, round, yellow eye, and the remarkable manner in which the bird endeavours to make itself as inconspicuous as possible by lying down with its body and outstretched head and neck pressed quite close to the ground, when it may be easily mistaken for an irregularly shaped stone, on which the eyes form small dark blotches. In this mode of concealing itself the stone-curlew exhibits another mark of affinity with the bustards. The large eyes of this bird clearly proclaim that it is to a considerable extent nocturnal, or crepuscular; and this is rendered certain by the fact that the long wailing cry from which it derives its name of stone-curlew is heard more frequently in the evening and at night (especially when there is moonlight) than in the daytime. Its food appears to be entirely of an animal nature, and comprises beetles and other insects, worms, snails, etc. The eggs, which in England appear to be always two in number, although in India there may be three, are laid on the bare ground among loose pebbles or stones, which they so closely resemble as to be exceedingly difficult to detect. In length they measure from just below 2 inches to nearly $2\frac{1}{2}$ inches; and their colour is dark or light stone with irregular spots or blotches of brown or blackish, with faint grey inferior markings. Stone-curlews afford good sport with the hawk, in escaping from which they have been known to take refuge in rabbit-holes. The flesh is said to be excellent for the table.

**Cream-coloured
Courser**
(*Cursorius gallicus*). With the cream-coloured courser and the species next on our list we come to two birds which are such rare visitors to the British Isles that they have no native names and are consequently designated by what may be called artificial titles. Together with certain other birds altogether unrepresented in Britain they constitute a family, the Glareolidæ, which connects in some degree the stone-curlews with the plovers, and is entirely confined to the eastern hemisphere. Affinity with the stone-curlews is indicated, for instance, by the fact that in the Egyptian plover (*Pluvianus ægyptiacus*) the aperture of the nostrils is oval in the dried skull, whereas in the other forms it is of the slit-like plover-type; while the coursers display a similar kinship in the loss of the hind-toe. Collectively the group is characterised externally by the oval nostrils being impervious, more or less protected by flaps of membrane, and situated in a depression instead of a groove; while

the lower part of the legs is protected both in front and behind by transverse shields, and the middle toe has a comb-like structure. Although the eggs much resemble these of the plovers in colouring, being buff or stone-colour with spots and blotches of brown or blackish, in their oval shape they are like those of the stone-curlews and bustards.

The cream-coloured courser is sufficiently distinguished by having only three toes to each foot, its comparatively long legs, and short squared tail. As indicated by its name, the general colour of the upper-parts is sandy buff, with a tinge of pinkish ; the flight-feathers being black, with sandy-coloured edges and white fringes to the tips of



MOUNTED IN THE ROWLAND WARD STUDIOS

CREAM-COLOURED COURSER.

the secondaries, while the tail-feathers are tipped with white, below which is a band of black. Pale bluish grey is the prevailing tint of the back of the head and the nape of the neck ; but above each eye runs a conspicuous white band, joining its fellow on the nape, and behind the eye bounded below on each side by black stripes which meet to form a triangular patch on the back of the neck below the white. Both sexes are alike in plumage ; and immature birds differ from the adults merely by the presence on the feathers of the upper-parts of curved dark grey bars, an indication, by the way, that the sandy-coloured plumage of the adult is a comparatively recent feature acquired to adapt the species to its desert habitat. The primitive type of colouring is still more fully displayed by the chick, which is covered with pale buff down mottled with a darker shade of the same colour. The length of the bird is 10 inches.

The cream-coloured courser is the typical representative of a genus containing four other species, the collective range of the whole five embracing the desert districts of southern Europe, western Asia, India, and Africa and the Canary Islands; the typical species ranging from the Mediterranean countries and the Canary and Cape Verd Islands to Afghanistan and the north-west of India. To the British Islands the species is only a rare straggler, twenty-six individuals being the number known to have been taken or seen in England and Wales up to 1901, while of its occurrence in Scotland there is but one instance, and it has never been known to visit Ireland. As regards the habits of such an extremely rare straggler to the British Islands, it will suffice to say that the species is generally seen singly or in small parties on open, sandy, or stony ground, where it is constantly on the move, running quickly about in search of insect-food, very much after the manner of a stone-curlew.

Pratincole
(**Glareola**
pratincola).

For want, on account of its rarity, of a proper English name of its own, the typical representative of the Glareolidæ is commonly called the pratincole, an ugly and uncouth title made by anglicising its Latin designation, the alternative and better name of swallow-plover not being in general use. The pratincoles, in the wider sense of the generic term, comprise a group of about a dozen species, ranging over the warmer parts of the eastern hemisphere inclusive of Australia, and in some cases visiting their extreme southern haunts only in winter. Many of the species appear to be only partially migratory; the one under consideration being, for instance, a wanderer in some localities and stationary in others. As already mentioned, these birds are broadly distinguished from the coursers by the presence of the hind-toe, which is raised somewhat above the level of the others, while they are further distinguished by their short legs and long wings. In the more typical representatives of the group, like the one under consideration, the tail is also long and deeply forked, thus giving to these birds a remarkable resemblance to swallows. So swallow-like in general appearance is indeed the typical pratincole that it was actually regarded by Linnæus as a member of the same group as the swallows, and consequently named *Hirundo pratincola*.

The true pratincole, whose normal geographical range extends from southern Europe to Central Asia and India, and in winter includes Africa, is somewhat larger than a swallow, measuring $10\frac{1}{2}$ inches in length, and is so unlike other members of the plover-tribe

(except of course its immediate allies) that there would be every excuse for an amateur not recognising it as such. The plumage of the two sexes is alike; the upper-parts being clove-brown in colour, with the tips of the secondary quills, the tail-coverts, and the base of the tail white, the throat buff margined with black (giving rise to the name collared pratincole), the breast buff, and the remainder of the under-parts white. In immature birds, on the other hand, the back is mottled and starred with grey, and the breast striped with dark brown; this being doubtless the ancestral plumage of the group. In the down-clad chicks the general colour is clove-brown, with darker mottlings above, and white beneath.

Only twenty specimens of the pratincole are recorded as having visited the British Islands during the nineteenth century, two of which were from Scotland and its islands, while one alone falls to the share of Ireland. Another example was, however, taken in Kent in 1903.

All these birds frequent the shores of rivers and lakes, where, in common with so many members of the plover

tribe, the old birds resort to the ruse of being maimed in order to divert attention from their eggs or young. In addition to this, they exhibit in a marked degree the death-feigning instinct, frequently lying flat on the ground with the wings extended in an apparently helpless condition. As these birds have never been known to breed in Britain, it will be unnecessary to allude to their eggs.

In the year 1903 four specimens of the black-winged pratincole (*Glareola melanoptera*) were taken in England, two in Kent, and two in Sussex, these being the first recorded examples of that species from Great Britain. Such a visitation affords, of course, no valid grounds for the inclusion of the black-winged pratincole in the proper British list. In South Africa this species preys largely on locusts, and is in



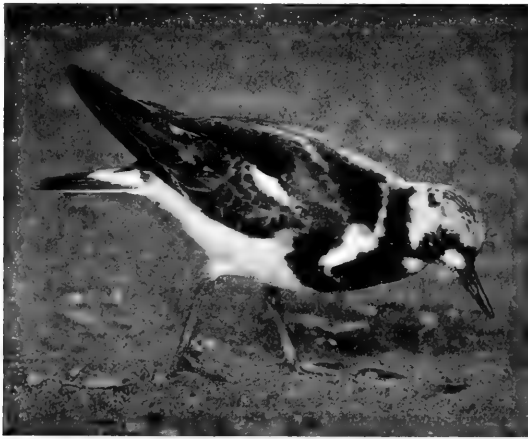
PRATINCOLE.

consequence locally known as "the small locust bird." These birds appear in vast swarms during the South African spring; that is to say, after the first welcome showers of rain in September or October. During the heat of the day they may be detected running through the grass, or resting quietly in low-lying situations; but in the late afternoon or early morning they become more active, the flocks taking wing as if by word of command, and flying round and round high in the air, so as to look almost like dust-clouds. They keep moving forwards till a swarm of locusts is sighted, when the individual birds break away from the main flock like the dispersal of a storm-cloud. When the swarm is reached the birds attack from behind, flying and darting through the locust swarm, with the result that a continuous shower of the legs and wings of the insects falls to the ground. The beak of this pratincole seems, indeed, to be specially adapted for preying on locusts, as it exactly covers the body of the flying insects, and with one snap shears off the wings and legs as effectually as if two pairs of scissors were used. Not only do these birds attack the adult locusts, but they also prey on the immature insects, locally known as *voetgangers*. When they are attacked by a flock of these birds the *voetgangers* stop their regular march, and try to escape destruction by taking cover among the herbage. All birds attack flying locusts from the rear, as the rush of the insects would render a frontal attack dangerous; and so great is the attraction of these insects for the birds that when they appear the most tempting baits are neglected.

Turnstone
(*Streptilas*
interpres).

With the pied and partially rufous bird appropriately named, from its habit of turning over pebbles in search of its food, the turnstone, we come to the first representative of the group of wading-birds, or Charadriidæ, which is taken to include not only the plovers and their immediate relatives, but likewise the snipe, avocets, etc. All these birds are characterised by the nasal apertures in the dried skull being slit-like, and the nostrils pervious, as well as by the presence of only fifteen vertebræ in the neck. In the latter respect they resemble the Glareolidæ, and differ from the Ædicnemidæ (in which there are sixteen); from the Glareolidæ they differ by the lack of the comb-like structure of the middle toe. The hind-toe is either short or absent. The eggs are highly characteristic, being very generally, although by no means invariably, four in number, and shaped like a peg-top, with one end rounded, and the other conical, so that they lie compactly with the pointed ends together in the slight hollow in the ground, sometimes

sparsely lined with grass, which constitutes the nest. The group includes several subfamilies, of which the first comprises the plovers and lapwings, together with the somewhat aberrant turnstone; the latter differing from the rest in the character of the beak, which has evidently been specially modified in accordance with the habits of the bird. Collectively, the Charadriinæ, as the subfamily group is called, are characterised by the length of the beak not exceeding that of the head, with the groove for the nostrils not extending along more than half the beak itself, and by the scales on the hind surface of the lower part of the leg, and frequently also on the front surface, forming a network pattern. While the turnstone is a frequenter of the seashore,



TURNSTONE.

the plovers and lapwings are birds of the open meadows and grassy and sandy tracts, rather than dwellers near marshes.

The turnstone, which in some works is termed *Arenaria interpres*, differs, as already mentioned, from the plovers by the form of the beak, which is conical and pointed, with the upper surface straight and flat, and the narrow nostrils lying in a groove which extends for half its length. The first primary quill of the long and pointed wing exceeds all the others in length; the short lower part of the leg has transverse shields in front, the hind-toe is well developed, and there is no webbing of the front-toes. Of the two species of turnstone, the one is American, while the second, or that here under consideration, is practically cosmopolitan, and breeds in the high latitudes of the frozen north, visiting such countries as India and Ceylon in winter.

In its full summer-dress the cock turnstone, which measures $9\frac{1}{2}$ inches in length, may be recognised at a glance by the pied black and white of the head, neck, and upper part of the breast, the mingled black, bright chestnut, and white of the back and wing-coverts, the white of the lower portion of the back and under-parts, the black upper tail-coverts and beak, the white-shafted black quills, and the brilliant orange legs. At the same season the hen is a trifle duller in colour, and shows less chestnut; but in winter both sexes have the upper-parts nearly uniform dusky brown, without any chestnut mottlings, and likewise lack the white markings on the head and neck. Immature birds in first plumage resemble the adults in winter-dress, with the exception that the feathers of the upper-parts display buff markings. The chick is dark grey, spotted with black above, and with various markings on the head; the under-parts varying from greyish to white.

Except during migration, the turnstone is only to be met with on the seashore, where it may often be seen without difficulty engaged in its characteristic occupation of ascertaining what is to be found beneath stones and shells; its food consisting of the shrimps, sand-hoppers, molluscs, and such-like creatures as seek security in situations of this nature. For operations of this description the swollen beak of the plovers would manifestly be unsuited; and the solid conical beak of the turnstone may accordingly be regarded as an adaptive modification, which by no means affects its intimate relationship to that group. So great is the power of the neck that one of these birds has been known to turn a slab of stone several inches square; while their ingenuity is such that, when unable to turn over a large fish, they have undermined it in order to get at the concealed supply of food. Conspicuous as is the plumage of these birds when mounted in a museum, on a mottled shingle like that of the Chesil Beach, in Dorsetshire, turnstones are almost impossible to detect when crouching down among the pebbles; and it is not till they rise with their shrill whistling cry that their presence is revealed to the casual observer. Most of the turnstones which visit Great Britain do so on migration, the northern flight taking place in May, while the return journey may occur at any time from the end of July to the end of September. A certain number of these birds remain, however, for the winter on the south coast. Moreover, from the fact of pairs being occasionally met with in various parts of the country in summer, there is good reason to believe that they may sometimes breed with us. The best evidence for such breeding occurs in the case of the Farne Islands, off the Northumberland coast, where they are stated to have once nested

frequently, and to do so occasionally at the present day. Indeed, eggs have actually been purchased from the Farne fishermen, which there is every reason to believe were those of turnstones. There is no evidence that the species breeds in Ireland. Eggs of the turnstone from Grinnell-land, Finmark, Sweden, and Denmark are in the collection of the British Museum. In length they measure from $1\frac{1}{2}$ to $1\frac{3}{4}$ inches; and in ground-colour vary from pale greenish grey to olive-buff, with spots, blotches, and smears of various shades of brown, olive-brown, and underlying purplish grey; these markings being larger and more crowded at the big end, where they form a kind of cap.

Plover
(*Charadrius*
pluvialis).

Since the bird to which the names of golden, yellow, or green plover are commonly applied, appears to be the plover, *par excellence*, and consequently the only one to which that name properly belongs, it manifestly requires no explanatory prefix, except as an aid in distinguishing it from other species. The name plover, or *pluvialis*, equivalent to "rain-bird," refers, it is believed, to an old superstition that this bird is more easily captured in wet than in fine weather. In common with the following members of the Charadriinæ, it possesses the characteristic plover-beak, which is distinctly swollen at the end, with the superior surface convex. As a genus, the plovers are specially distinguished by the yellow-spotted plumage of the upper-parts, and the absence of the hind-toe; and likewise by the assumption on the part of both sexes of a special breeding-plumage, in which the under-parts are uniformly black. Another point in which they differ markedly from the turnstone is the length of the lower part of the leg, which displays a network type of scaling all round. Only two representatives of this genus of plover are known, both of which have an almost cosmopolitan distribution, breeding in the northern part of their range, and wandering to southern lands in winter. The southward range is, however, much more restricted in the case of the present species than in that of its smaller ally; the latter reaching Australia, New Zealand, South Africa, and South America, while the former does not wander beyond India and northern Africa.

In Europe the plover may be regarded as in some degree a partial migrant, passing all the year in the more central parts of its haunts, such as the British Islands, Germany, etc., but deserting the Mediterranean countries in summer for the far north, where it breeds in latitudes as high as Greenland, Jan Mayen, and Novaia Zemlia. Whether the Mediterranean birds pass directly to the extreme north, or whether,

as is more probable, there is a gradual "shift-up" of the members of the species, does not appear to be ascertained. The plover is only an occasional straggler into India during winter, where its place is taken by the lesser plover (*Charadrius dominicus*), which may be seen in flocks in the Bengal snipe-jhils. In the British Islands plover nest in small numbers on the high grounds of Devon and Somerset, more numerous on those of Wales, Derbyshire, and thence along the Pennine chain into Scotland, and so on to the Hebrides, Shetlands, and Orkneys ;



MOUNTED IN THE ROWLAND WARD STUDIOS

PLOVER (WINTER).

while they also breed on the mountains of Ireland, as well as locally in lowland bogs.

The plover measures 11 inches in length. In the summer breeding-plumage the upper-parts of the cock are mottled with golden yellow, black, and white ; white also occurring on the forehead, whence it extends backwards over each eye along the side of the neck and the upper border of the flank ; the whole of the under side, with the exception of the under tail-coverts (which are white, as are the axillaries) being black. In winter, on the other hand, the yellow predominates above, and the under surface is wholly white. The hen in summer usually has somewhat less black on the lower surface. Immature birds in the first plumage differ from the adults in winter-dress

merely in being yellower on the back and in showing more mottling on the flanks. The chicks in down have a parti-coloured coat of orange-yellow mottled with blackish brown. The weight of a fat plover ranges from 8 to 10 oz.

In its white under-surface the winter-dress of the plover displays the ordinary protective type of coloration so common among both mammals and birds; the lightening of the belly being intended to counteract the dark shade thrown by the body in full sunlight. The effect of the summer-dress is, of course, just the reverse of this; and it would be interesting to ascertain in what, if any, special manner this livery is protective.

Plover feed upon worms and insects, or on small shell-fish when frequenting the shore, and in winter associate in flocks, which may be small or of considerable size. Their flight is strong and rapid, and the flock alights with a sudden downward rush, which when once seen cannot be mistaken. The cry is a kind of two-syllabled whistle; and the flesh is highly esteemed as an article of food. The eggs, which measure from a little less to a little more than 2 inches in length, are relatively large, show a distinct gloss, and have a ground-colour varying from pale greenish grey to rich buff, upon which are spots and blotches of dark brown, reddish brown, and black, with inconspicuous underlying markings of pale purple. In England these eggs are laid about the middle of May in a tuft of grass, or in a hollow in the ground slightly lined with bents or fibres, and frequently situated among heather. The cock, in some cases at least, takes a share in hatching the eggs. It should be added that it is not this species but the lapwing which affords the main supply of plovers' eggs for the market. Although, as already mentioned, they may be found breeding in marshes, these birds generally keep to the uplands in summer,



MOUNTED IN THE ROWLAND WARD STUDIOS

PLOVER IN SUMMER-DRESS.

whence they descend in winter to the marshes, estuaries, and the coast generally, after the broods have collected in flocks.

A few stragglers of the lesser, or lesser golden plover (*Charadrius dominicus*), distinguished by its grey axillary plumes, have been taken in the British Islands, one being recorded from Norfolk in 1874, a second probably from the same county in 1882, a third from Orkney in 1887, a fourth from Perthshire in 1888, and a fifth from Ireland (Mayo) in 1894. The typical representative of this species is North American, and if the Asiatic race is distinguishable, it should be known as *C. dominicus fulvus*.

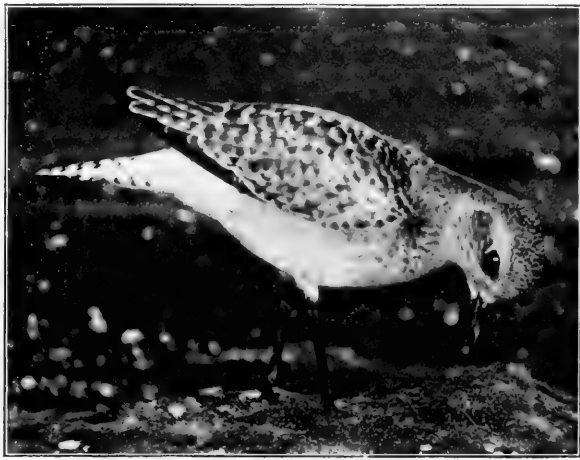
Grey Plover
(*Squatarola*
helvetica).

Larger, and in Britain less abundant, than the preceding species, the grey plover displays the same double moult, with the assumption of a black plumage on the under-parts in summer, but is broadly distinguished by the retention of the hind-toe, as it also is by the less important character of having the axillary feathers black in place of white. Although these two features, coupled with the absence of a crest to the head, are amply sufficient to distinguish the species, the following particulars may be added. Spots and bars of mingled black and white constitute the colouring of the plumage of the upper-parts of the cock when in full breeding-livery; in marked contrast to which is the jetty black which extends from the sides of the face to the hinder part of the belly, where it is replaced by white. In autumn this plumage is changed for one in which the back is greyer and the whole of the under-parts white. In both plumages the hen differs from her lord solely by a slightly less brilliancy of tint; while the birds of the year differ from their parents in the winter-dress in having the upper-parts spangled with golden buff—a feature which may cause them to be mistaken for golden plover, and also one which indicates that this is the original type of colouring of the group. In the chick the orange ground of the golden plover is replaced by yellow, upon which are spots of black; this type of colouring being said to harmonise completely with the yellow-green moss fringing the small bogs in proximity to which the nests are usually placed. The length of this bird is 12 inches, and its weight probably exceeds in a small degree that of the plover.

The grey plover, which is the sole representative of its genus, is practically a cosmopolitan bird, breeding in the far north all round the Pole, and in winter wandering south into Africa, India, Australia, and South America. For such a wide-ranging species the name

helvetica (given on account of the circumstance that the specimens first described came from Switzerland) is singularly inappropriate ; and in the opinion of the present writer this is one of those cases where a name should be changed on account of its unsuitableness. If such a course were permissible, the grey plover would be known by the title of *Squatarola cinerea*, which would be in every way suitable. In the British Islands the grey plover is most familiar as a migrant, and is more common on the return journey in autumn than in spring ; nevertheless, a certain number of individuals remain to pass the winter with us, while from May to July specimens in the black summer-plumage — probably non-breeding birds— are occasionally seen.

August and September are the months in which the arrival of the young birds from the frozen north is to be expected ; the parents not making their appearance till the two following months, by which date most of them have assumed the white-bellied winter-plumage. The species is nowhere so com-



Mounted in the Rowland Ward Studios

GREY PLOVER.

mon in the British Islands as the true plover ; and in Ireland, as in the west generally, is even less abundant than in other parts of the British Islands. Except during the breeding-season and on migration, the grey plover is mainly to be met with on the seashore and neighbouring stretches of mud ; it is likewise more wary in disposition, and from the greater difficulty of imitating its cry is less frequently deluded within gunshot by the wiles of the fowler. The species breeds nowhere within the British Islands, and the suggestion that it nests on the high fells of Norway appears to lack confirmation. Eggs are still rare in collections, the only examples possessed by the British Museum in 1902 being thirteen taken from the tundra in the neighbourhood of the Petchora River between June 22 and July 12. Nest there is practically none, the four eggs being laid in a round and deep hollow, lined

with a few twigs and fragments of reindeer-moss, on the open tundra. As to the eggs themselves, these are perhaps best described as intermediate between those of the plover and those of the lapwing, the blotching being similar, but the ground-colour, which is browner in



MOUNTED IN THE ROWLAND WARD STUDIOS

GREY PLOVER (COCK) IN SUMMER-DRESS.

some examples and more olive in others, being less buff than typical specimens of the former and not so purely olive as those of the latter. In length they range from 1.9 to 2.2 inches. As with plovers generally, a single annual clutch is laid.

With the exception of its shyer disposition and more littoral habits, the grey plover is very similar in its mode

of life to the golden species. Although sometimes collecting in flocks of considerable size, it seems to be more generally seen in small parties on the seashore, the members of which occupy themselves in searching for the small animals left by the ebbing tide.

**Lapwing or
Peewit
(*Vanellus
vulgaris*).**

Fortunately for lovers of bird-life the lapwing or peewit, which derives one of its names from its flight, and the other from its well-known cry, is such a wary bird, and its eggs so marvellously resemble their surroundings, that despite the enormous numbers in which the latter are taken for the table, it still holds its own in large flocks on all the open grounds, whether dry or marshy, throughout the British Islands. Indeed, although the numbers of these birds appear to have diminished considerably in many parts of England, the species is reported to be on the increase in certain districts in Scotland. As the *Tringa vanellus* of Linnæus, the species is known in advanced nomenclature as *Vanellus vanellus*, while it is often termed *Vanellus cristatus*, a name far preferable to *V. vulgaris*, but unfortunately of later date. From all British representatives of the plover group, the lapwing,

which is the sole representative of its genus, is broadly distinguished by the graceful crest adorning the head ; a similar feature occurs, it is true, in certain foreign plovers, but these are distinguished by the presence either of wattles on the sides of the head or of spurs on the wings. The lapwing, which is a four-toed bird, further differs from the more typical plovers by its broad and rounded wings, in which the secondary quills are nearly as long as the primaries, and to which the slow flapping flight, so different from the wild rush of the golden or the grey plover, is due. On these grounds the lapwing might well have been



MOUNTED IN THE ROWLAND WARD STUDIOS

LAPWING.

placed in our system before the golden plover, were it not advisable to place the typical representative of a family group near the beginning of the series.

In summer the range of the lapwing extends from Europe through western and Central Asia to northern China, and thence across Bering Strait into Alaska, while in winter a certain number of individuals migrate from the more northern haunts of the species to the south of Europe, northern Africa, the north-western districts of India, and the south of China. The breeding-range of the species is unusually extensive in regard to latitude, reaching in Europe from Spain nearly to the Arctic Circle, and in Asia as far as latitude 65° . The species is, indeed, to be regarded as a partial migrant, deserting only its extreme northern haunts in summer, and visiting some of the most southern

portions of its range only in winter. Not that it is to be supposed that the most northern birds reach to the extreme southern limits of the habitat, but rather that a general northern movement takes place in summer, and a corresponding southern movement in winter.

In the case of such a thoroughly familiar species description is almost superfluous, but for the sake of uniformity the following particulars are given. In the first place, the total length of the bird measures almost exactly a foot. In regard to colouring, dark green with purple and bronze reflections is the prevailing tint of the upper-parts in both sexes, which are superficially alike, although distinguishable by a difference in the proportionate lengths of the primary quills of the wings. In the cock, for example, the second, third, and fourth of these quills are practically of a size, and larger than the rest, while the first and sixth are also nearly of a size; in the hen, on the other hand, the second and third quills, which are nearly equal in length, are the longest, and the first is equal in length to the fourth. Nor is this all, for whereas in the outspread wing of the cock the fan-shaped primaries project beyond the margin of the secondaries, in the hen no such superiority of size is shown. In summer the crest of the cock is longer than that of his partner; and at this season both sexes display a black throat, which in winter changes to white, continuous with that of the under-parts at all seasons. The colouring is thus of the ordinary protective type. The dress of birds of the year resembles that of the adults, with the exception that the crest is shorter, and the feathers of the back and adjacent parts have greyish-buff edgings. The chick is greyish buff above, spotted on the head and streaked on the back with black; and white below, except for a dark band extending nearly across the breast. White, buff, and grey "sports" have been observed in the adult.

Peewits are more or less gregarious at all seasons of the year, although much more so in winter than in summer. Some idea of the enormous numbers in which these birds congregate may be gathered from the fact that in a single field near Glasgow an observer counted something like 8000 head. The food of the lapwing chiefly consists of worms, insects, grubs, and slugs; except in the case of such flocks as resort in winter to the seaside, when this diet is exchanged for one of small marine and littoral creatures. The evolutions of a flock of lapwings on the wing, when the birds as they wheel from time to time present their silvery breasts to the spectator, is a beautiful sight. The devices to which lapwings resort in order to divert the attention of intruders from their eggs or young, and likewise the difficulty of

discovering their eggs, are too well known to need more than passing mention. Although there is often a slight lining of grass or heather, the eggs are usually laid in a mere hollow in the ground, it may be in one of several scratched by the cock, or, perchance, in some large animal's footprints; and it is only in extremely rare instances that their number is either one above or one below the normal four, in both cases the symmetrical packing of the clutch being destroyed. Usually the eggs, which are laid in April and May, are devoid of gloss; they vary in colour from pale olive to olive-buff, with blackish-brown and black spots and blotches of variable size, and underlying markings of pale purple. Although the lapwing owes its commercial importance entirely to its eggs, which in early spring command a very high price in the London market, where they are later on sold in enormous numbers, the flesh of the bird itself is of good quality in winter, but by no means equal to that of the plover.

Three instances have been recorded of the occurrence in the British Isles of the sociable lapwing (*Chettusia* [or *Chætusia*] *gregaria*) of eastern Europe and Central Asia. The first case, of which the authenticity is doubtful, is stated to have occurred in Lancashire in 1860; the second took place in Ireland, where an immature bird was taken in Meath in 1899; the third specimen was shot in Romney Marsh, Kent, in 1907. This lapwing belongs to a small genus, the members of which lack a crest, and have drab, in place of metallic green, plumage.

Ringed Plover
(*Ægialitis*
hiaticula).

The genus typically represented by the ringed plover is also taken in this work to include the sand-plovers and dotterels, since, as has been well observed, although the two latter groups appear to be distinguished by having a summer breeding-dress different from the winter-plumage, there is so complete a transition, through the Kentish plover, in which the change is slight, from species with a double plumage of this description to others in which the dress is similar at all seasons. The genus, in this sense, may be defined as including small birds resembling the golden plover in the absence of the hind-toe, but differing by the plumage being uniformly brown above in place of spotted, and never wholly black below. A considerable number of species, with a collectively cosmopolitan distribution, and most of which wander far to the south in the winter, is included in the genus in this extended sense. They are all shore-haunting birds, as indeed is indicated by their scientific name.

The ringed plover, of which the scientific name has been altered in recent British Museum publications to *A. hiaticola*, is mainly a migratory species, ranging throughout Europe and western and Central Asia as far as Lake Baikal, in summer wandering even as far north as Jan Mayen, Spitzbergen, and Greenland, and even occurring on the western coast of America near Cumberland Bay, while in winter it travels mainly to Africa, although a few individuals stray into north-western India. In the British Islands it is to be met with on the coasts, where it breeds on pebbly beaches, as it also



MOUNTED IN THE ROWLAND WARD STUDIOS

RINGED PLOVER.

does on the shores of some lakes, while it may be seen on open ground inland during migration. Such individuals of the species as remain permanently in Great Britain and Ireland are, as a rule, larger than the typical continental form, examples of which not unfrequently however, visit our southern coasts. In Ireland, where it breeds both on the coasts and around lakes, its

numbers are considerably augmented in winter by immigrants from the north.

The species is one of those which do not assume a special breeding-plumage, and in which the two sexes are alike; the entire length of the bird being $7\frac{1}{2}$ inches. As regards the plumage, the most distinctive feature is that the shafts of all the primaries are white near the tips. For the rest it will suffice to state that the general colour of the upper-parts is light brown, the forehead being white bordered above by black, the space in front of the eye and the ear-coverts black, the neck collared with white, below which is a black gorget, followed by the white of the under-parts. White tips distinguish the greater wing-coverts, while the dark brown primaries have, as already mentioned, the shafts near the tips marked with white flecks, with a bar across the wing when extended. Birds of the year lack the black on the head and upper part of the breast. The young chick is white, mottled above with grey and buff, and showing a dark stripe

along the middle of the crown, a dark transverse bar across the back of the head, and a white nape to the neck.

Even among birds so solicitous and resourceful in regard to the safety of their eggs and young as are the members of the plover tribe in general, the ringed plover occupies an exceptional position, showing more anxiety and concern than do any of the others; and it is by this very anxiety that its presence is frequently revealed. Although during the breeding-season they can be approached with less difficulty than at other times, these birds are also much more shy than most



MOUNTED IN THE HOWLAND WARD STUDIOS

LITTLE RINGED, AND RINGED PLOVER.

of their relatives, and feeding on mud-flats in company with dunlins, as is their frequent custom, they take wing long before the latter display the slightest concern at the approach of intruders.

The nest is generally a mere hollow scratched in the sand, unless indeed the bird avails itself of some ready-made hole; the sandy hollow being in many cases at least surrounded by pebbles to which the eggs present a very strong resemblance. Indeed, it has been stated that the colouring of the eggs varies according to the ground upon which they are laid, but this apparently stands in need of confirmation. In the eggs themselves, which vary in length from $1\frac{1}{4}$ to just over $1\frac{1}{2}$ inches, and are moderately glossy, the ground-

colour ranges from cream to pale buff, with sometimes a tinge of green, upon which spots and small blotches of dark brown or black,



LITTLE GOLDEN PLOVER.

with more or less conspicuous underlying markings of pale purple, are evenly distributed.

Of the little ringed plover, *Ægialitis dubia* (or *Æ. curonica*) a few examples have undoubtedly been taken in England, chiefly on or near the southern coast; but many of the instances recorded are due to the small continental form of the ringed

plover having been mistaken for the allied species. The little ringed plover, which may always be distinguished from *Æ. hiaticula* by the circumstance that the shaft of the first primary quill is alone white, is clearly therefore not entitled to rank as a member of the real British bird-fauna.

Kentish Plover
(*Ægialitis*
alexandrina).

The bird commonly known as the Kentish plover was described in the year 1801, on the evidence of specimens killed a few years earlier in Kent, under the name of *Charadrius cantianus* (subsequently altered to *Ægialitis cantiana*), on the supposition that it was a new species. Later it was found to be inseparable from the *Charadrius alexandrinus*, and is accordingly now known as *Ægialitis alexandrina*. Its summer-range extends from Europe through western and Central Asia to China and Japan, while in winter it visits Africa and India (where it occasionally remains to breed), and also Australia. To the British Islands it is chiefly a summer-visitor, arriving in the south-eastern counties of England, which form its chief British resort in May, and departing in September with its young. In addition to its favourite shingle-beaches of Kent and Sussex, where it is now far less common than formerly, it has been met with occasionally in

Devon and Cornwall, while specimens (probably late immigrants from the Continent) have been taken in East Anglia in autumn, and it has also been observed in Yorkshire, to the north of which it appears to be unknown. It is not recorded from North Wales; and in Ireland it is known only as an extremely rare visitor to the east coast during the autumn-migration. Denmark and the south of Sweden seem to mark its northern breeding-range in Europe; and it has also been known to breed as far south as Algeria, Egypt, Smyrna, the Persian Gulf, Ceylon, and Formosa, from all of which localities the British Museum possesses specimens of the eggs.

From the ringed plover and its lesser relative, the Kentish plover, which measures about $6\frac{1}{2}$ inches in length, is distinguished by the occurrence in the cock of a partial change in the colour of the plumage at the commencement of the breeding season, as well as by the black legs and feet, and the replacement of the broad black gorget by an incomplete one, forming a patch (black in the cock, and brown in the hen) on each side of the neck. In summer the general colour of the upper-parts in the cock is pale brown, relieved by bright



MOUNTED IN THE ROWLAND WARD STUDIOS

KENTISH PLOVER.

rufous (darkening on the nape) on the crown of the head, between which and the white of the forehead is a black bar, while, in addition to the aforesaid patch on each side of the breast, there is a black spot in front of the eye, and a similar patch on the ear-coverts, the throat and under-parts being white, as are the shaft of the first primary quill and parts of those of the rest. In winter the cock loses the bright rufous tint and the black markings on the head more or less completely, while the breast-patch fades to brown; the bird in this dress being very similar to the hen at all seasons. Birds of the year resemble the adult hens except that the feathers of the upper-parts are pale-edged. The chick is somewhat darker and more closely mottled than that of the ringed plover, and lacks the longitudinal head-stripe.

In general habits the Kentish plover resembles the ringed plover,

being usually confined to the coast, although sometimes wandering inland, probably on migration. During spring and summer the birds keep in pairs ; and the eggs are reputed to be more difficult to distinguish from the stones among which they lie than are those of any other species. From the great majority of the plover tribe the present species differs



MOUNTED IN THE ROWLAND WARD STUDIOS

CASPIAN SAND-PLOVER.

in that its eggs are usually three in number, although there may be the normal four. Usually they are laid in a hollow in fine sand, which may be deep enough to permit them to stand almost upright ; but they have been found on a heap of seaweed cast up by the tide. They measure rather more than an inch in length, are free from gloss, and vary in ground-colour from pale to dark buff ; the

markings, which are evenly distributed, taking the form of specks, spots, and scrawls of dark brown or black, with the usual pale purple underlying marbling.

Of the American kill-deer plover, *Ægialitis vocifera* (referred by some writers to a separate genus under the name of *Oxyechus vociferus*) four examples were recorded as British up to the year 1904, namely, one from Hampshire in 1859, a second from Peterhead in 1867, a third from the Scilly Isles in 1885, and a fourth from Scotland in 1904.

An even rarer straggler is the Caspian sand-plover, or eastern dotterel, *Ægialitis asiatica* (also known as *Eudromias asiaticus* and *Ochthodromus asiaticus*), of which an example, now in the Norwich Museum, was taken at Yarmouth, Norfolk, in May 1890. It differs from the true ringed plovers by the absence of a white collar, and is further distinguished by its slender beak, the dark shaft of the third primary quill, and the white axillary plumes.

Dotterel (*Ægialitis morinella*). With the dotterel (a name apparently having the same signification as dotard) we reach a species in which both sexes assume in summer a full breeding-plumage; and on this ground it has been referred to a genus by itself with the title of *Eudromias morinellus*. As stated above, such a separation seems, however, to be quite unnecessary, seeing that species like the Kentish plover, in which the change is only partial and confined to the male sex, connect it in this respect with the ringed plover, in which there is none.

The dotterel has a wide range in Europe and northern Asia, where it extends in the breeding-season to the tundras of eastern

Siberia, nesting also in northern Russia, and Novaia Zemlia, as well as on the high fells of Scandinavia, certain of the mountain ranges of central Europe and the hills of Cumberland, and thus northwards through Scotland, although at the present day in much diminished numbers. In winter it visits the Mediterranean countries,

inclusive of north-eastern Africa, as well as Persia, although unknown in India. Its breeding-range in Great Britain appears to be limited towards the south by the Cumberland hills; in the western counties of England it is rare, as it is in Wales, where, however, it is possible the species may breed on some of the mountain-tops. To Ireland it is a very rare visitor, chiefly during the autumn-migration. To the British Islands the dotterel is a somewhat late visitor, usually arriving towards the end of April or early in May, and departing early in autumn, although a specimen has been killed late in November. Although young birds may be shot on the coast during the autumn-migration, this species, unlike the ring-plover, is an inland bird, frequenting high elevations.

Measuring 9 inches in length, and undergoing a complete double



MOUNTED IN THE ROWLAND WARD STUDIOS

DOTTEREL.

moult, which is common to both sexes, the male dotterel in summer may be at once recognised by the rich chestnut of the breast and flanks, passing posteriorly into a broad border of black, and bounded anteriorly by a narrow crescentic band of white; there is a broad white stripe above each eye, meeting posteriorly on the nape, and the abdomen is also white; the feathers of the crown of the head are dark brown with buff margins; those of the neck and back ash-brown inclining to buff on the fore part of the neck, and, together with the greater wing-coverts, scapulars, and inner secondaries, margined with pale chestnut; and the quills dusky. The hens are slightly larger than the cocks, measuring 9 inches in length and rather more brightly coloured. In winter the white crescentic band across the breast and the chestnut and black patch are lost, the whole of the under-parts being white, tinged with buff on the breast. Young birds in their first plumage are more or less intermediate in colouring between the summer and winter plumages of the adults, the upper-parts being darker than in the adults in winter, and having the buff margins to the feathers more conspicuous, while the under-parts, though white, are more deeply tinged with buff on the breast, and bear traces of black on the abdomen. The chick is buffish white, mottled with chestnut and black; the head being lighter, with the forehead and eyebrow white, the middle line of the head and a couple of bars behind the eye black, and a band of creamy white round the back.

Dotterel on arrival at their breeding-grounds—which may be either the heathy uplands of the north of England or the mossy Siberian tundra—display considerable fearlessness and confidence, allowing themselves to be approached within a comparatively short distance; and it is from this confiding disposition, which is, however, soon exchanged for one of mistrust, that they are believed to derive their name. From the fact that of the countless thousands of these birds which leave northern Africa in spring for the far north scarcely a single individual alights anywhere in the intervening country, there are strong grounds for believing that this prodigious journey is accomplished in a single night. Dotterel frequently assemble in their southern haunts in enormous flocks during winter, when they exhibit the same confiding nature as on their arrival at the breeding-grounds. Worms, insects, grubs, together with buds and young shoots, constitute the food of this species. The near affinity of the dotterel to the Kentish plover is proclaimed by the circumstance that its eggs, which are laid in a hollow among moss or heather and measure from $1\frac{1}{2}$ to $1\frac{3}{4}$ inches in length, are invariably three in number. Having a faint

surface gloss, they show a ground-colour varying from olive-grey to olive-buff, with bold spots and blotches of rich brown or black, mainly massed at the larger end, and exceedingly faint underlying markings of pale inky purple. The fact that more than sixty wire-worms, together with a couple of beetles, have been taken from the stomach of a single dotterel, sufficiently proves what valuable service a flock of these beautiful birds must render to the agriculturist. A "trip" is the fowler's term for a flock of dotterel.

**Sea-Pie or
Oyster-Catcher
(*Hæmatopus*
ostralegus).**

Although the large and strikingly coloured shore-bird known either as the sea-pie or oyster-catcher, together with the other members of the same genus, is frequently regarded as the sole representative of a special subfamily group of the Charadriidæ, it seems preferable to make that group—the *Hæmatopodina*—include the stilt and the avocet, together with the so-called ibis-bill of India, although it cannot be definitely asserted that all these four birds are very intimately related. All the four genera have the beak long, and the scaling on the lower part of the leg of the network-type, while none of them has a distinctive breeding-plumage. Moreover, with the exception of the ibis-bill, the plumage is pied black and white; and the eggs of the three European genera are singularly alike, those of the Indian genus being apparently still unknown. The sea-pie belongs to a genus, containing about a dozen species, with a cosmopolitan distribution, characterised by the straight, compressed, stout beak, which is longer than the lower section of the leg, and the absence of the hind-toe. The range of the European species includes the sea-coasts (to which this bird is chiefly confined) of the greater part of Europe and Asia, it being very doubtful whether the Chinese and Japanese sea-pie can be regarded as anything more than a local race. In winter it visits the shores of the Mediterranean, the Persian Gulf, and the Indian Ocean, extending in Africa as far south as Mozambique. Its breeding-range reaches as far north as the North Cape and the lower courses of the great Siberian rivers, and likewise includes the shores of the Caspian and Black Seas. In Great Britain the oyster-catcher is to be found all round the coasts, breeding chiefly in the north of England and Scotland, but also in the Scilly Islands and a few other southern localities, as well as in Anglesey and Carnarvon. In Ireland, where it is likewise abundant and resident throughout the year, it is reported to breed chiefly on the surrounding islands, more especially those of the northern and western coasts.

As this bird derives one of its English names from its colouring, and the other from its habits, so it takes its first scientific name from the blood-red colour of its legs, and the second from its reputed fondness for oysters. The pied plumage and brilliant colouring of the beak and legs are, indeed, amply sufficient to distinguish the sea-pie, of which the male measures 16 and the female 17 inches in length, from all other birds, so that the following particulars are almost superfluous.

In the plumage of both sexes the upper-parts are mostly black, with the lower portion of the back, the tips of the middle wing-



MOUNTED IN THE HOWLAND WARD STUDIOS

SEA-PIE OR OYSTER-CATCHER.

coverts, and the whole of the greater coverts, and the basal two-thirds of the tail-feathers white, as are all the under-parts, from the lower portion of the neck backwards; the beak being vermilion with a yellowish tip, the legs pink, and the iris of the eye crimson. What may be the precise adaptive purpose, if any, of this striking type of colouring has not yet been ascertained. In young birds in their first plumage the feathers of the back and wings have brown margins; and the chick is sandy grey, mottled with black above, and wholly white below, the back displaying on each side a pair of dark stripes which coalesce posteriorly.

The loud clear whistling cry often indicates the near presence of an oyster-catcher when the bird itself is hidden from view; rocks between

tide-marks, where concealment is easy, being some of the favourite haunts of the species. Fields or meadows near the sea, as well as mud-flats and the lower parts of river-valleys are likewise the resort of the sea-pie, which may be seen singly, in pairs, or in small or (more rarely) large parties. During the breeding-season the members of a pair keep to themselves, the cocks doing sentry-duty during the three weeks of incubation. The inland lochs of Scotland are some of the breeding-places. Although there can be no doubt that the powerful compressed beak of the sea-pie is admirably adapted to prise open the valves of mussels, to detach limpets from their hold on rocks, or to extract the luscious whelk from its shell, there may be some hesitation in admitting that it is sufficiently strong to wrench open a full-grown oyster; and some confirmation of this is afforded by stories of oyster-catchers having been found with their beaks held fast in the vice-like grip of these bivalves. As a matter of fact, the name oyster-catcher was originally applied to an American species, and it is certain that the English species does not eat oysters. In addition to molluscs, various kinds of shrimps, crabs, etc., contribute largely to the diet of the sea-pie. The nest, as a rule, is a small hollow scraped in the sand between the shingle and broken shells which strew the beach above high-water level; and it appears that several such holes are frequently excavated before one is found suitable to the taste of the prospective parents. In this hollow, after it has been lined with small pebbles or fragments of cockle and other shells, the female deposits in April or May her three eggs, which measure from a little more than 2 to rather over $2\frac{1}{2}$ inches in length. They have a ground-colour varying from clay-brown to stone and pale greenish olive, and are marked with blotches, lines, or scribblings of chocolate-brown, with underlying spots of purplish grey. Occasionally, as in a nest at Blakeney, Norfolk, in 1907, four eggs are laid, and it is stated that in such instances one in the clutch differs from the other three. The extreme wariness of the oyster-catcher renders it a difficult bird to shoot; while the remarkable resemblance presented by eggs and young alike to their surroundings are further safeguards for the preservation of the species.

The great majority of the mussels attacked by the oyster-catcher are opened on the dorsal border of the shell, where the valves are gaping, by the bird thrusting its beak into the aperture, and then using it as a lever, at the same time severing the adductor muscles. If one of the valves be fractured in the process, the lever action becomes unnecessary. About nine per cent are opened on the ventral border, where the aperture for the byssus or "beard" renders the molluscs

vulnerable even when the valves are tightly closed. Mussels presenting this aspect of the shell are carefully sought out by the birds. Finally, about thirteen per cent of the mussels are attacked at the posterior end of the shell.

Stilt
(*Himantopus*
candidus).

The stilt, or black-winged stilt, as it is often called, is the *Charadrius himantopus* of Linnæus, and hence in many modern ornithological works is designated *Himantopus himantopus*, in preference to the title by which it has been so long and so generally known. Were it but of larger size and furnished with a neck in proportion to its enormously



STILT.

elongated legs, it might well have been called the giraffe among birds; but the stilt, as a matter of fact, has no need of an unduly long neck, its habit being to wade in shallow water up to its knees, when the beetles and other water-insects, which form its food, are brought within easy reach of its long beak. From the sea-pie, with which it agrees in the absence of the hind-toe, the stilt may be distinguished at a glance by the great length of the leg from which it takes its name, and the narrow slender beak, much inferior in length to the lower segment of the leg.

Other characteristics are to be found in the long and pointed form of the wings, in which the first primary quill is the longest, the short and evenly truncated tail, and the partial webbing of the toes, the web between the outer and middle toes being longer than the one connecting the other two. The bird is one of some half-dozen others forming a genus of which the collective distribution includes the temperate and tropical regions of the whole globe. Unlike so many of the plover tribe, it does not travel north to breed, Denmark, indeed, apparently marking its ordinary northern limits; but nests throughout the Mediterranean countries, many parts of India, and

thence eastwards as far as the Hoangho valley in China. It also breeds in South Africa—of course at the opposite time of the year to that in which it nests in Europe. Many of the European birds migrate in winter to North Africa; and those which in summer reach the British Islands and the north of Europe generally are mere stragglers, as the species has never been known to breed in such latitudes.

In the cock the head, neck, the lower portion of the back, the axillary feathers, and the under surface of the body are white, and the mid-region of the back, together with the wings, is black with green reflections, while the under wing-coverts are wholly black. Brown replaces the black in the female; and the birds of the year differ from the latter merely by the sandy margins to the dark feathers, and the brown top of the head and nape of the neck. Although the beak is black, the legs are pink. As the species is such a mere straggler to Britain, any mention of the young, eggs, or nests would be superfluous.

Just over forty instances of the occurrence of the stilt in the British Isles were recorded during the nineteenth century, most of these being single birds, although there were several pairs and at least one flock. The localities range from the Orkneys and Shetlands to the southern and south-western counties and Ireland. Norfolk and Suffolk, as might be expected, claim a considerable share, namely, eleven of the records; and it is interesting to note that in the winter of 1832 one of these birds was seen at Frensham Pond, Hampshire, the locality where a flock of six came under the notice of Gilbert White, of Selborne, in the year 1779.

Stilts, which frequently associate in large flocks, frequent the open parts of the shallows of pools and lakes, avoiding covert, and being so easily approached that they are easily noticed. Their loud cries, as well as their conspicuous plumage, likewise attract attention, both when wading knee-deep in water, or flying overhead with outstretched legs.

Avocet
(*Recurvirostra*
avocetta).

Unlike the stilt, the graceful avocet was formerly a regular summer-visitor to England, where it bred in the marshy grounds of Sussex, Kent, Norfolk, and Lincolnshire. Not a single English-laid egg is, however, contained in the collection of the British Museum; and it is believed that the species has not nested in England since the year 1824. With the stilt the avocet is connected by an Australian species, which, while agreeing with the former in the structure of the feet, approximates to the latter in having a slight upward inclination of the tip of the beak.

PLOVER GROUP

On this ground it has been made, perhaps unnecessarily, the type of a distinct genus, with the designation *Cladorhynchus leucocephalus*. The distinctive features of the avocet are to be found in the strong upward curvature of the slender beak, the presence of a small hind-toe, and the deep, although scalloped webbing of the front-toes. Four species of avocet, two of which are American, and a third Australasian, are recognised. The range of the European avocet includes (or rather perhaps



AVOCETS.

included) the greater part of central and southern Europe, and western and Central Asia as far east as Mongolia, together with the whole of Africa, while in winter the species visits India and Ceylon. Over the greater part of this extensive range the avocet formerly bred in suitable localities, that is to say, in the neighbourhood of swamps and marshes, but the progress of cultivation and draining, together with the persecution from which such a lovely bird cannot hope to escape, has driven it from many of its original haunts. At no period of its history does it

appear to have been more than an occasional straggler to the west of England, Ireland, and Scotland, where it generally made its appearance during the spring and autumn migrations, and it is now reduced to this condition in the southern and eastern counties of England. Of late years, owing to efficient bird-protection, things have, however, been looking a little better for the avocet in Norfolk, and in May 1904 a pair of these birds, in company with a party of spoonbills, made their appearance at Breydon Water, where they remained for several days, allowing themselves on one occasion to be approached within fifty yards.

As regards the colouring of the avocet, it will suffice to state that both sexes are alike in this respect, and that while the upper-parts are pied black-and-white, and the middle tail-feathers wholly white in summer, in winter the latter become distinctly greyish brown, while the white of the upper-parts may apparently also be tinged with grey, and the black of the head and back of the neck becomes confined to the crown and nape. Possibly at the latter season the black of the plumage may assume a brownish tinge in the adult, although there is some uncertainty as to whether such a colour is only met with in birds of the year, in which such a tone is invariably present. The grey downy coat of the chick is marked with bars of dusky above, and also shows a dark stripe on each side of the back, which lower down unites to form a single line; the under-parts being yellowish white. It should be added that the beak is black at all ages, while the legs are pale blue in the adult and greenish in the young. As regards the length of the bird no two writers seem to agree, one putting this at 16, and a second at 18 inches, while a third gives $16\frac{1}{2}$ inches for the cock and 17 for the hen!

Avocets, which can swim well, are usually found in small flocks on the borders of marshes, rivers, salt-lagoons, etc., where they feed on crustaceans, worms, and molluscs, to obtain which they search the mud and sand with a semicircular sweeping action not unlike mowing. A slight hollow in mud or sand, sometimes sparsely lined with grass or leaves, serves as a nest for the four eggs, which usually measure rather more than 2 inches in length, and have a clay-brown ground-colour marked with spots, or sometimes scratches and scribbly lines of black, the spots in some instances running together to form blotches. In 1907 a pair of these birds bred in the London Zoological Gardens.

Curlew
(*Numenius*
arquata).

The curlew, which derives both its scientific names (*Numenius*, from the Greek *neo méné*, the new moon, and *arquata*, Latin for bow-shaped) from its sickle-shaped beak, is the first representative of the Totaninæ, or third subfamily of the plover-tribe; this subfamily being taken to include the phalaropes, and characterised by the comparatively central position of the eyes on the sides of the head, and the possession of a distinct summer and winter plumage. With the exception of the phalaropes, the toes are unprovided with lateral flaps of skin, and in



MOUNTED IN THE ROWLAND WARD STUDIOS

CURLEW.

the great majority of the group the three front ones are connected at the base by short webs. The curlew itself belongs to a genus with some eight or nine species, ranging over the whole of the northern hemisphere, many of which visit the opposite half of the globe in winter. The long, slender, downwardly-curved beak, with the blunt tip of its upper half overhanging the lower, and the nostrils lodged in a very elongated groove, the long and pointed wings, of which the first quill is the longest, the short and rounded tail, and the moderately long, four-toed legs, in which all but the lower front portion of the lower section (where the scales form transverse plates) is covered with net-like scales, are some of the chief characteristics of the genus.

The range of the curlew includes the whole of northern Europe and Asia as far east as Lake Baikal, and in winter Africa and Madagascar, India, Ceylon, Burma, the south of China, and the Malay Peninsula. In Great Britain this handsome bird breeds on the high moorlands of the south of England from Cornwall to Hampshire and Wiltshire, in Derbyshire and the north of England, in Wales, and throughout Scotland and the Isles. In the bogs and moors of Ireland it nests in abundance; and in autumn and winter, as in Great Britain, a number of immature birds, some of which remain to breed, visit the coasts.

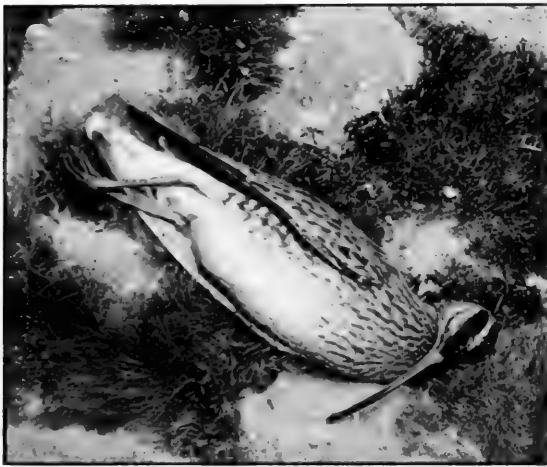
In addition to its large size (total length 21 inches in the cock, and rather more in the hen), the curlew is characterised by the plumage of the upper-parts in summer being pale brown with the middle of the feathers darker; the white lower portion of the back and tail-coverts, the latter being streaked with dark brown and the tail barred with the same; the neck and breast of the same pale brown streaked with dusky as the back, and the hinder portion of the under-parts white. The winter-dress differs only in being paler. Young birds are more buff-coloured than the adults, from which they may be distinguished by the lighter colour of the triangular patches and bars on the inner secondaries. The chick is pale grey tinged with buff and mottled with dark brown above, and white below.

During winter, curlews are chiefly found on the coasts, where they associate in flocks, but in spring resort to open inland districts and pair-off for the breeding-season, although a certain number of non-breeding birds remain in their winter haunts. Probably many North British curlews wing their way to still more northern lands to nest, their places being taken by migrants from the south. The eggs are laid in April, or, more usually, May, and there seems to be only one clutch in a year. Curlews have a quick flapping flight, with their long legs carried straight out behind, and utter a peculiarly plaintive and long-drawn cry of two syllables, in addition to which they have a distinctive alarm-note. While near the sea, the food of these birds comprises, of course, various littoral creatures, but in summer consists chiefly of worms, insects, and grubs, varied when on the moors by berries. Despite its peculiar shape, the long beak appears to be used in probing the mud for food. A mere hollow in the ground, lined with a few leaves or bents, or occasionally a tussock of grass, serves the curlew for nest, and the relatively large eggs, which frequently depart from the pegtop-shape so characteristic of the plover-tribe in general, range in ground-colour from olive, stone-grey, or light olive-

brown to greenish olive, with spots and blotches of various shades of brown, generally evenly distributed, but sometimes aggregated at the larger end, and underlying markings of faint purple. White curlews are not uncommon, but dark-coloured, or melanistic, specimens are very rare. The excellence of its flesh causes the curlew to be much sought after for the table, but its wariness calls into requisition all the wiles of the fowler. Whaup is a local name.

Whimbrel
(*Numenius*
phæopus).

It is somewhat curious that birds so closely resembling one another as the curlew and the whimbrel should have entirely distinct English names, as it might have been thought that the title of lesser curlew would have sufficed to distinguish the present species from its larger relative. The whimbrel, of which the cock measures



WHIMBREL.

15 inches in total length, is chiefly a passing visitor to the British Islands, appearing on the coasts during its northern journey in April and May, and returning in August and September, although the birds of the year show themselves on their way south a month earlier. As in the case of the curlew, a certain number of non-breeding birds pass the summer with us; but as a

breeding-species its British resorts are the Orkneys, Shetlands, and North Rona in the Outer Hebrides. In the Færoes it apparently takes the place of the curlew as a nesting-bird; and from these islands and Iceland its breeding-range extends eastwards through Scandinavia and the north of Russia to the Petchora valley on the western side of the Urals, while in winter it visits the south of Europe, Africa, and the Indo-Malay countries. In Ireland, somewhat curiously, it is much more abundant during the spring-migration than on the return journey.

Apart from its inferior size, the whimbrel may be distinguished

from the curlew by the pale brown streak along the middle of the crown of the head ; in other respects it is distinguishable chiefly by the generally darker tone of the plumage. The winter-dress differs from the breeding-plumage only in that the spots and bars of the under surface are less distinct. Immature birds differ from the adults more than in the curlew, being much more mottled above, and having the feathers spotted with reddish buff, while the lower part of the back is mottled with spots of dusky brown. The chick closely resembles that of the curlew.

The general habits of the whimbrel are so similar to those of the curlew that they need not be noticed in detail, although it may be mentioned that the breeding-haunts of this bird are on moors nearer the sea. Titerel is the name applied to the whimbrel on the south coast, from its peculiar quivering cry. As its flesh is compared to that of the curlew, the bird is even more sought after than the latter, which it equals in shyness. The resources and ingenuity of the fowler are, however, more than a match for the wariest bird that ever flew, and there is a record of twenty-one whimbrel having been killed in Pagham by a single discharge from a double-shotted gun. The nest and eggs, which are ready for brooding by the end of May, are very similar to those of the curlew ; the eggs themselves being smaller than those of the latter, with a long diameter of from 2.05 to 2.45 inches. The weight of a whimbrel is about 1 lb., against from 1 lb. 12 oz. to 2 lbs. 8 oz. in the curlew. Both species have the same powerful and dashing flight, which is so forcible that a curlew has been known to smash the plate-glass of a lighthouse lantern.

Of the Eskimo curlew (*Numenius borealis*), which is a native of Greenland and America, only seven examples were recorded from the United Kingdom during the whole of the nineteenth century, so that this species has not a vestige of a claim to rank as a British bird.

**Black-tailed
Godwit (*Limosa*
belgica).**

The black-tailed godwit, the *Limosa algocephala* of many ornithological works, the *Scolopax limosa* of Linnæus, and hence the *Limosa limosa* of the modern school of nomenclature, is one of two British representatives of a genus with five species and a nearly cosmopolitan distribution. From the curlews and whimbrels the godwits differ by the straight beak, which has, however, a slightly upward inclination at the tip, where it is not expanded, and of which the length exceeds that of the tail. The black-tailed species, which formerly bred in the Lincolnshire fens, the Isle of Ely, and Norfolk,

is a migratory bird, nesting in the colder regions of Europe and Asia as far north as the Arctic circle, and wintering in the Mediterranean countries, India, Burma, and Australia. The breeding-range of the species is unusually wide as regards latitude, extending from the marshes of Holland and Belgium to the Siberian tundras. The draining of the Lincolnshire fens put a stop to its breeding in that part of England as early as 1829, but a single nest is recorded from Norfolk so late as 1857.¹

The distinctive feature of the black-tailed godwit is, as indicated



MOUNTED IN THE HOWLAND WARD STUDIOS

BLACK-TAILED GODWIT.

by its name, that the terminal half of the tail is mostly black and devoid of barring, while the basal half is white. As in the second species, the general tone of the summer-dress is red and that of the winter-plumage greyish brown, a feature in which these birds resemble many mammals, such as the roe-buck, red deer, and white-tailed deer.

Compared with the bar-tailed species, described next, the black-tailed godwit in summer is duller in colour, the upper-parts being pale chestnut, deepening on the back and wings to dusky brown

¹ This is the date given in Stevenson's *Birds of Norfolk*, and in Harting's *Handbook of British Birds*, where the cessation of breeding in Lincolnshire is given as 1813; in Saunders's *Yarrell* the former date is given as 1847.

mottled with black and barred with buff; the under-parts are white, barred on the breast with pale chestnut and dark brown; and the lower part of the back and base of the tail white, the terminal portion of the latter being black. The winter-dress is similar to that of the next species. In young birds the base of the neck is tinged with red, and the upper part of the breast with ashy brown, passing backwards into grey. The chick is yellowish buff above, with black stripes on the head, neck, and back, and yellowish beneath.

In Great Britain the black-tailed godwit is a less common bird than the next species, and is generally found singly or in small parties, although in India during the cold season it is often met with in flocks of from fifty to a hundred head. It reaches the British coasts on its northward journey in April, and returns from August to October, occasionally also putting in an appearance during the winter-months. Only rarely is it seen inland; and, with the exception of the marshes of the Solway Firth, it is a scarce bird in Scotland, on the east coast of which it is most frequently seen during the autumnal southern journey. A specimen was, however, shot on June 7, 1907, in the inner Hebrides, another at Barra on September 8, a third on Beaully Firth at the end of November, and a fourth at St. Andrews on December 5 of the same year. To Ireland this godwit is also only an occasional visitor, chiefly in August and the following months. During the breeding-season it has a peculiar habit of wheeling in circles at a great height above its nest on the approach of intruders, uttering its loud and characteristic shrieking cry. On the coast it feeds on various small littoral and marine animals, but when on its inland breeding-grounds subsists chiefly on insects, grubs, worms, snails, etc., although it may also eat vegetable substances, since in India it is known to be partial to millet and rice during winter. Advantage is taken of this habit in Calcutta to feed these birds on grain for the table, and they are commonly sold in the bazaar as woodcock. The nest is a mere depression, without lining, in the moss on the bogs these birds chiefly frequent for breeding purposes; and the four eggs may be deposited at any time between the latter part of April and the middle of May. In colour the eggs, which measure from just over 2 to nearly $2\frac{1}{2}$ inches in length, range from olive-green to olive-buff, with spots, blotches, and cloudings of pale yellowish and amber brown, usually evenly distributed, and very faint under-markings of grey. From 12 to 14 oz. is the weight of a black-tailed godwit, against from 10 to 12 oz. in the next species.

PLOVER GROUP

Bar-tailed Godwit

(*Limosa
lapponica*).

Although so much more common on migration in the British Islands than the black-tailed species, the bar-tailed godwit never bred either there or in the Netherlands, being, in fact, a bird whose nesting-range is exclusively northern, ranging eastward from the swamps and marshes of Finland and Lapland across the Siberian tundra to the Yenisei valley. In winter it visits Africa north of the equator and south-western Asia, where its extreme easterly limits seem to be the neighbourhood of Karachi, in Sind. In England the species is more common during the autumn-migration than on the spring journey,



BAR-TAILED GODWIT (SUMMER).

but is local in its distribution, never apparently being very abundant in the eastern and southern counties of England, although it has been recorded in Northumberland in thousands during winter, while a fowler in Morayshire is said to have accounted for no less than 115 head at a single shot, thus completely eclipsing the record of 21 whimbrel referred to above. On the west coast of Scotland this godwit is reported to be rare, appearing occasionally only on Iona and Mull. To Ireland, and more especially on the east and west coasts, it is, however, a regular visitor, and a few remain for the summer. It is much more truly a coast-bird than the last species (which favours mud-flats and estuaries rather than beaches); and, like the latter, is in the habit of associating with other waders, especially knot and dunlin. From whimbrel it may be distinguished at a

distance by its two-syllabled cry, uttered in couplets. In other respects, and especially in the form of its nest, this godwit closely resembles the black-tailed species, from which it is distinguished not only by the more or less complete barring of the tail-feathers and tail-coverts, but likewise by the shorter legs. The eggs, which are slightly smaller on the average than those of the last species, are olive or olive-brown in ground-colour, with sparse spots of light brown, which may be aggregated at the larger end, and underlying spots of purplish grey.

In the summer-dress of the male bar-tailed godwit the head, neck, and under-parts are rich chestnut-red, with the feathers from the



BAR-TAILED GODWIT.

crown to the breast marked by dark streaks, while the back and wing-coverts are beautifully variegated with white, black, and brown; the lower part of the back is white streaked with black; and the upper tail-coverts and tail are white barred with black. In winter the upper-parts are uniform grey and the under-parts white. Young birds resemble the adults in their summer-dress, but have a tawny tinge, most decidedly marked on the sides of the body, and rufous buff mottlings on the upper-parts. The young in down are unknown.

Red-breasted Godwit
(*Macrorhamphus griseus*). As a mere straggler to the British coasts, a very brief notice will suffice of the red-breasted godwit, or red-breasted snipe, which together with its eastern relative, the snipe-billed godwit (*M. semipalmatus*), represents a genus of godwit-like birds with long snipe-like beaks, broadening out and deeply pitted at the tip. As in

the godwits, the summer-dress is rufous and the winter grey, so that these birds are much better called godwits than snipe, as is the practice of some ornithologists. There is considerable individual variation in the length of the beak of the present species, which is a native in summer of Arctic America, where it breeds, and in winter visits Texas and Central America. Twenty-three instances, some less authentic and satisfactory than others, of the occurrence of this species in the British Isles were recorded during the last century, two of the cases including more than a single bird. They refer to England, Scotland,

and Ireland ; the only records for the latter island being, however, a couple of specimens obtained on different occasions in the year 1893.



MOUNTED IN THE HOWLAND WARD STUDIOS

RED-BREASTED GODWIT.

In length this bird does not exceed 11 inches ; and the beak is pitted at the extremity as in snipes. In summer-plumage the upper-parts are black spotted with pale chestnut, except the lower part of the back, which is white,

spotted and barred near the tail with black ; the tail-feathers are dark brown barred with white : the secondaries are margined and mottled with white, and have white shafts, and the under surface is pale chestnut sparsely spotted with black on the upper part of the breast, and barred on the flanks. Except for a somewhat longer beak, the hen scarcely differs from the cock. In winter the upper-parts are greyish brown, with black shaft-streaks to the feathers of the back ; the wing-coverts are fringed with white ; and the chestnut of the under-parts is replaced by white streaks on the chest and barred on the flanks with dusky. Young birds resemble the adults in summer-plumage ; but have the brown of the upper-parts paler, and the chestnut more marked.

**Sandpiper, or
Summer Snipe
(Totanus
hypoleucus).**

Although referred by some ornithologists to a genus apart, under the name of *Tringoides hypoleucus*, that familiar bird, the sandpiper or summer snipe, is much better included in the same generic group as the redshank and greenshank; the members of that group differing from the foregoing representatives of the Totaninæ by the length of the beak not exceeding that of the tail, and being generally about equal to that of the lower segment of the leg (occasionally slightly longer and more frequently somewhat shorter), as well as by the two sexes being alike in plumage. Although the characters of the legs and feet are somewhat variable, the lower segment of the former has both front and hind surfaces covered with transverse shield-like scales, and the hind-toe is always present, but the web between the middle and outer toes may be rudimentary. The summer snipe, or common sandpiper, is a member of a group of small species with the beak nearly straight, and the legs short and either olive or green in colour; this particular species being distinguished by the absence of any white on the rump.



MOUNTED IN THE ROYAL WARD STUDIOS

SANDPIPER.

The range of this very common bird includes the greater part of the eastern hemisphere, the breeding-area comprising the temperate regions, and the winter habitat including southern Africa and Asia and Australia. To the British Isles the species is a summer-visitor, breeding in the south-western counties of England, Wales, the north of England, Scotland, and throughout Ireland. During the autumn-migration, when its numbers are recruited by the birds of the year, it is one of the most abundant of the British waders, occurring comparatively seldom on the coasts, but abundantly around inland lakes or even ponds, and on the banks of rivers and estuaries, although many of the islands off the Irish coast form some of its favourite nesting-haunts. Its breeding-range extends as far north as the

Arctic Circle. By the young sportsman the sandpiper is often mistaken for a snipe; and, except when collected in family parties, is by no means easy of approach, being constantly on the move and keeping itself well beyond range. Its rapid movements, accompanied by incessant oscillations of the short tail, as it runs over mud-flats or along the borders of lakes, ponds, and rivers, are, indeed, so familiar as to require no description; while its cry of *whit—whit—whit*, uttered every time of rising in short jerky flight, is likewise well known to all who have visited the haunts of the species. It is perhaps less well known that the sandpiper is an excellent swimmer, although it seldom practises this mode of locomotion. Its food consists principally of worms, insects, and such like. The nest is merely a rude structure of moss and leaves placed as a rule on the sloping banks of inland fresh waters, either in a hollow or a hole, and generally beneath the protecting shelter of a tussock of grass or rushes, although a cornfield near water may be the site. The four eggs, which are generally laid in May and vary in length from rather more than an inch and a quarter to just over an inch and a half, range from cream to pinkish buff in colour, with chocolate-brown spots and blotches, generally evenly distributed, and underlying markings of purplish grey.

In summer-dress, the sandpiper, which measures $7\frac{1}{2}$ inches in length, has the upper-parts brownish grey glossed with bronze reflections, and barred with delicate wavy lines of black changing to bars on the scapulars and inner secondaries; the wing-coverts are barred with black and tinged with grey, except the greater ones, which are broadly tipped with white and barred with black, as are the three inner pairs of tail-feathers; and the under-parts are white. The dark markings disappear in winter. Young birds in their first plumage have the upper-parts freckled with cross-bars of reddish buff and brown. The downy chick is pale grey mottled above with black and with the under-parts white.



MOUNTED IN THE ROWLAND WARD STUDIOS

SPOTTED SANDPIPER.

Closely allied to the present species is the spotted sandpiper, or American summer-snipe, *Totanus* [or *Tringoides*] *macularius*, but as only half-a-dozen genuine instances of its occurrence in our islands

were recorded during the past century, it has no claim to be regarded as a British bird. Of these six instances, four occurred in England, and one each in Scotland and Ireland.

Green Sandpiper
(*Totanus*
ochropus).

On account of the shortness of the lower segment of the leg and the rudimentary condition of the web between the middle and outer toes, the green sandpiper (together with the undermentioned American species) is sometimes referred to a separate genus, under the name of *Helodromus ochropus*. So short, indeed, is the lower portion of the leg that it is inferior in length to the beak; and other characteristic features are to be found in the dingy green legs and the brown of the lower part of the back. This bird is distributed all over Europe, Asia, and Africa, breeding in the more northern districts (in Europe from north Germany and central Russia nearly to the Arctic Circle), and wintering in Africa and southern Asia, inclusive of the Malay Archipelago. To the British Islands the species is chiefly a spring and autumn visitor on passage, although specimens are not uncommon in winter, and in Norfolk it has been observed in every month in the year. Whether it has ever actually bred within our limits appears to be a moot point, since the evidence is not absolutely decisive. One ornithologist definitely states, for instance, that it is not known to have bred in Great Britain; while a second expresses his belief in the assertions as to its having bred several times in Yorkshire and once in Perthshire. The report of the keeper who furnished the Yorkshire birds as to their breeding in crows' nests is, so far as it goes, a strong confirmation of the truth of the report. To Ireland it is reported to be a rare visitor, from August to February inclusive.

Special characteristics of the species are to be found in the narrow angular white bars on the black axillary feathers and the black barring



MOUNTED IN THE ROWLAND WARD STUDIOS

GREEN SANDPIPER.

of the otherwise white tail. In summer the plumage is olive-brown above, glossed with bronzy green, and spotted with white; above the eye runs a white streak; the throat, and the sides and part of the breast are white with dusky streaks; the upper tail-coverts and under-parts are wholly white, and the legs and feet dull slate. In winter the spotting of the upper-parts is less decided. The total length of the bird is $9\frac{1}{2}$ inches. With the exception that there is less of the bronzy green reflections, immature birds are like the adults in winter. The chick is greyish buff above, with a streak in front of the eye, three stripes on the crown of the head, meeting on the nape, and three stripes on the back, black; while the under-parts are greyish white. By far the most noteworthy feature connected with this sandpiper is its habit of breeding in the deserted nests of other birds, in an old squirrel's drey, or even on the rubbish which may have accumulated in the fork of a large tree. In no case does it build a nest of its own; and the situation of the nesting-site is always at some distance, it may be as much as thirty feet, above the ground, even if a fallen tree-trunk afford the required elevation. No explanation of this strange departure from the normal habits of its kindred on the part of this sandpiper seems at present to have been offered by ornithologists. Although



MOUNTED IN THE ROWLAND WARD STUDIOS

SOLITARY SANDPIPER.

it has a softer and more musical cry, this bird is stated to approximate to the redshank rather than to the summer-snipe in general habits. The eggs, however, closely resemble these of the species last named, although they are rather larger and somewhat less glossy.

Of the North American solitary sandpiper, *Totanus* [or *Helodromus*] *solitarius*, three specimens only were reported from the British Islands up to the close of the nineteenth century,

namely, one from Lanarkshire some time previous to 1870, a second from the Scilly Islands in 1882, and a third from near Penzance, in 1884. In general appearance this bird resembles the undermentioned wood-sandpiper, but in addition to its slightly superior size, lacks the

white rump of the latter, and the black bars on the tail extend across both webs of the feathers.



WOOD.

GREEN.

SOLITARY.

SANDPIPERS' FEATHERS.

Wood-Sandpiper
(*Totanus glareola*).

The wood-sandpiper, referred by some ornithologists to a genus by itself, with the name of *Rhyacophilus glareola*, is a bird with the same type of colouring as the green sandpiper, but of rather smaller size, with a relatively shorter beak and longer leg, the tail being also comparatively long. In point of size it is somewhat larger than the common sandpiper (9 against $7\frac{1}{2}$ inches in total length), from which it is readily distinguished by the white rump. The breeding-range of this sandpiper extends in Europe from Holland and perhaps Bohemia in the south to the interior of Scandinavia and Lapland in the north, and thence eastwards through Russia and Central and northern Asia to Kamchatka, while its winter visiting-area embraces Africa, India, Burma, and the Malay Peninsula. In some parts of its European haunts it has been stated to arrive in April and retire in September, and young birds have been seen nearly full-feathered in the first half of June; but in the marshes of Hungary it has been observed in flocks at the latter part of May, and it is stated not to reach its Arctic breeding-grounds till June. To the eastern and southern coasts of England it is a fairly regular visitor on the autumn-migration, as well as to inland waters, but on the western side of the country it is seldom seen, and in Ireland had only been obtained on four occasions, in August and September, up to the close of last century. In the spring-migration the species is much less common; but there is evidence that in former days it occasionally remained to breed, a nest being recorded from Norfolk in 1846, a

second in Northumberland in 1853, and a third in Elginshire in the same year. As a rule, it is a very rare visitor to Scotland and the Isles, but a specimen was reported from the Orkneys in 1901.

Although the wood-sandpiper presents a strong superficial resemblance to the preceding species, it may always be distinguished by the markings of the axillary feathers, which are white indistinctly barred with brown, and the narrow black bars on the tail; it is also smaller, not exceeding $8\frac{1}{2}$ inches, while the green sandpiper is not less than 9 inches in length. In summer the under-parts are dark brown with



MOUNTED IN THE ROWLAND WARD STUDIOS

WOOD-SANDPIPER.

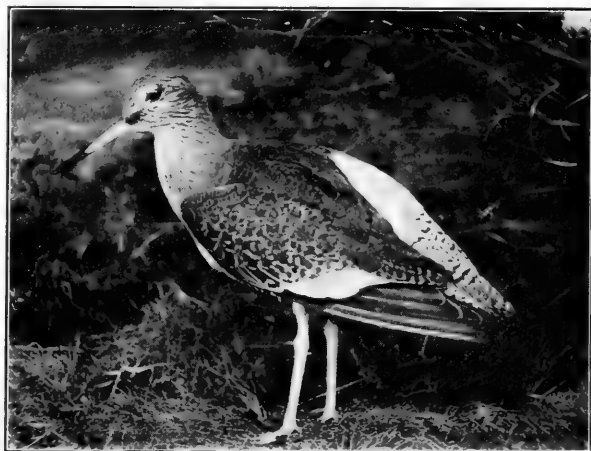
spots of white, which form notch-shaped markings to the edges of the feathers; the scapulars and inner wing-coverts are edged with white, and the head and neck streaked with the same; and the under-parts are white, except the breast and under tail-coverts, which are streaked with brown, and the flanks, which are barred with the same. The development of uniformity in colour is the only change

which takes place in the winter-dress, this being brought about by the loss of the white spots and dark streaks. In first plumage young birds have the upper surface closely spotted with buff and white. The down of the chick is chestnut-buff above, mottled with black, and buffish white below, passing into white on the abdomen.

The name of wood-sandpiper has been given to this species on account of its habit of perching on bushes, trees, or stakes—at least in Europe, for this peculiarity does not appear to have been noticed in India, where this bird, together with the green sandpiper, is familiar to sportsmen under the name “snippet.” In that country these birds, either singly or in small flocks, are more commonly met with on the borders

of marshes, or "jhils," than elsewhere. The nest, which is said to be exceedingly difficult to discover, and is generally stumbled upon accidentally, is usually on open and dry ground near a marsh, where there is shelter of heath, grass, or low bush. The eggs are remarkably handsome, having a ground-colour varying from very pale green to pale or even bright buff, with spots and blotches (the latter generally aggregated at the larger end) of reddish and chocolate-brown, and underlying markings of faint lilac. About $1\frac{1}{2}$ inches is the average length.

Redshank With that well-known British wader, the redshank, (*Totanus calidris*). we come to the typical representative of the genus *Totanus*, which is a larger bird than any of the members of the group hitherto mentioned (the length of the wing exceeding instead of being less than 6 inches), and is further distinguished by the orange-red colour of the legs from which it derives its name, and also by having the outer secondary quills of the wing and a patch on the rump wholly white. Redshanks breed throughout the greater part of Europe (namely, from the Mediterranean countries to the Färoes, Iceland, and to about lat. 70° in Scandinavia), and from Asia Minor through the heart of the Asiatic continent to the south-east of



MOUNTED IN THE ROWLAND WARD STUDIOS

REDSHANK.

Siberia ; while in winter they visit Africa and southern Asia, inclusive of India, Ceylon, Burma, and the Malay Archipelago. A frequenter during the breeding-season of marshy districts, such as the Norfolk Broads and the tideway of rivers, this bird used to nest in suitable spots throughout the greater portion of the British Islands, but drainage and cultivation have now greatly restricted its breeding-places. Both in Wales and the Outer Hebrides, it is, however, reported to be a rare species, although it breeds in most of the Irish counties.

Throughout the British Isles the numbers of the redshank are largely reinforced in autumn by the arrival of flocks of migrants from the north, some of which remain on the coasts during the winter. It is everywhere a wary bird, which may be recognised at a considerable distance by its loud call-note and the white on the wings.

As regards the colouring of its plumage, the redshank in summer is pale brown above, closely streaked and barred with umber; the secondary quills, the lower part of the back, and the upper tail-coverts (which are barred with black), together with the lower portion of the breast and the rest of the under-parts, are white; while the flanks are barred and the sides of the head, neck, and fore part of the breast streaked with greyish brown. The hen, though somewhat larger (measuring 11 inches in length), resembles the cock, but is neither so mottled above nor so spotted below. The winter-plumage is more uniform, the upper-parts being ash-coloured and the under-parts white streaked and spotted with grey on the neck and breast. In young birds the feathers of the back and wing-coverts have rufous edges. The chick is dirty white with a dark stripe on each side of the middle of the back, and two similar stripes on each side, and a dark stripe between the eye and the beak, continued backwards down the neck.

The redshank is a frequenter of tidal rivers and estuaries in Great Britain, where, as already mentioned, it may be seen either singly or in flocks; and it is a special peculiarity of the species that in such situations a number of its nests may often be found within a very limited area. During the breeding-season, when these birds will not unfrequently perch on a bare tree or post, the cock is in the habit of taking flights in the air, where he gives vent to his characteristic notes. The hollow in a tussock of rank grass, which may or may not be sparsely lined with grass or moss, serves for the resting-place of the four relatively large eggs, which are laid from April to June, according to the latitude of the breeding-place. Redshanks rarely breed far inland; but nests were recorded from Warwickshire in 1906 and 1907. When leaving her nest the hen often bends down the surrounding grass so as to hide the eggs. As a rule, the ground-colour of the eggs themselves ranges from cream to pale or ochery buff, upon which are spots and blotches of chocolate-brown, frequently aggregated into a kind of cap at the larger end, with underlying markings of pale purple. In a clutch taken in Norfolk, and now in the British Museum, the colour is, however, pale blue, finely speckled with reddish chestnut. A white redshank is on record. The length of the bird is 11 inches, and its weight about 6 oz.

Spotted Redshank (*Totanus fuscus*). The spotted, or, as it is sometimes called, the dusky redshank, is a somewhat larger bird than the last, measuring a foot in length, and weighing from 7 to 8 oz. It is, in fact, the largest British representative of the genus, and may be recognised at a glance by the brown and white barring of the secondary wing-quills and the white on the lower part of the back and rump. In the breeding-season this bird betakes itself to the extreme habitable regions of the far north, nesting well within the Arctic Circle alike in Scandinavia and Eastern Siberia; while in autumn it returns south to winter in the genial climate of the



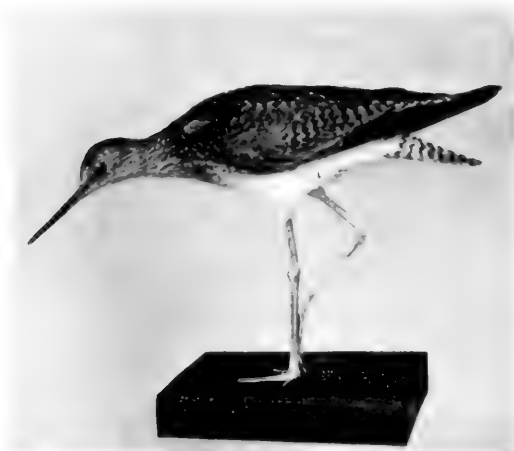
MOUNTED IN THE ROWLAND WARD STUDIOS

SPOTTED REDSHANK.

countries bordering the Mediterranean, together with India, Burma, and southern China. In England, where it is a comparatively rare visitor, less uncommon during the autumn than in the spring migration, it is more frequently seen in the southern and eastern counties than elsewhere, being but seldom recorded from Wales and the rest of the west coast; while it is equally rare both in Ireland and Scotland. A pair in breeding-plumage were killed in Kent in May 1905.

In addition to the features already noticed, the spotted redshank in summer-dress is characterised by the plumage of the upper-parts being sooty black with inconspicuous white spots and white margins to the wing-coverts; the inner secondary quills have bronze-brown markings, producing a mottled appearance at the edges; the tail is blackish barred with white; and, with the exception of the lower

tail-coverts, which are barred with black, the under-parts are white.



MOUNTED IN THE ROWLAND WARD STUDIOS

LESSER YELLOWSHANK.

unlike that of all other British waders. A full green is the general ground-colour of the eggs, upon which are spots and blotches of chocolate, with the usual deep-seated purple markings.

Before proceeding to the next undoubted British representative of the group a very brief reference must be made to the marsh sandpiper, or lesser greenshank (*Totanus stagnatilis*), a south European and Asiatic species, of which a single example is stated to have been shot on Tring Reservoirs in 1887. It is a comparatively small green-legged species, of the approximate size of

the green sandpiper, from which it may be distinguished by the lower part of the back being white and the lower segment of the leg longer than the beak.

In winter grey replaces the black of the upper-parts, which are then more marked with white than in the redshank, while the under-parts are white. Young birds are brown and more distinctly spotted than the adults in winter.

In general habits the spotted redshank is stated to be very similar to the ordinary species, with which it frequently associates, and for which it may be easily mistaken, unless it reveals itself by its peculiar and characteristic cry, so utterly



MOUNTED IN THE ROWLAND WARD STUDIOS

GREATER YELLOWSHANK.

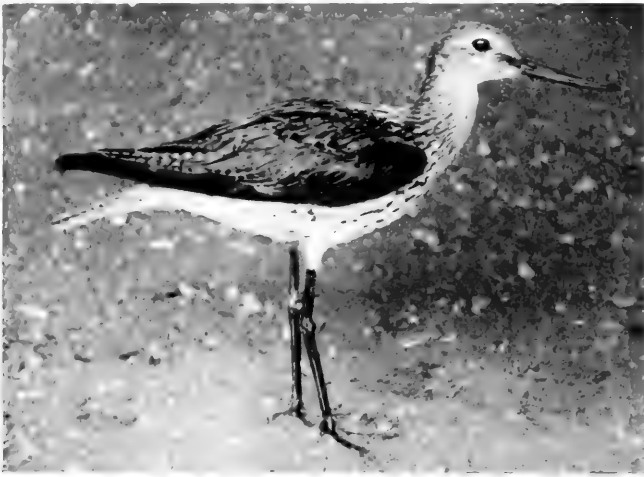
Here, too, may be parenthetically mentioned the lesser yellowshank (*Totanus flavipes*) and the greater yellowshank (*T. melanoleucus*), whose claims to be regarded as British birds are of the very slenderest, only one well-authenticated instance of the occurrence of each in the British Isles, namely, one of the former in Nottinghamshire during the winter of 1854-1855, and one of the latter in Cornwall in 1871, having been recorded during the nineteenth century. The genuineness of a third record, from the neighbourhood of Tadcaster in 1858, is doubtful. Both species are American.

Greenshank With the greenshank, the *Totanus canescens* of some
(*Totanus glottis*). zoologists and the *Glottis nebularius* of others, we
revert to the list of well-established British species.

It is on account of the slight upper curvature of the beak that this species (in which the length of the wing exceeds 6 inches) has been referred to a genus by itself (*Glottis*), but such a course seems unnecessary. Another distinctive feature of the species is the extremely rudimentary condition of the web between the middle and inner toes; while the yellowish-green colour of the legs from which the bird derives its name is an obvious distinction from the redshank. The greenshank, which is the best of all the sandpipers as a table-bird, ranges throughout the eastern hemisphere, breeding in the north of Europe and Asia, and passing the winter in southern Asia, China, and Australia, being a common bird at that season in localities suited to its habits all over India, Ceylon, and Burma. In England this bird is mainly a migrant, less common in the spring than during the autumn journey, and seldom remaining for the winter. Although naturally more abundant in the marshy districts of East Anglia than elsewhere, it has been met with in almost every part of the country. To Ireland it is a regular winter-visitor in small numbers, which may be met with on all suitable parts of the coast, but it has never been known to breed. In the more northern counties of Scotland this bird is, however, a regular breeder, apparently in increasing numbers, and it likewise nests in Skye, the Hebrides, and some of the other islands. Its breeding-range in Europe extends as far north as Lapland.

Weighing from 8 to 10 oz., and attaining a total length of a foot, the greenshank displays but little difference between the sexes and between the summer and winter plumages. In the breeding-dress the head, neck, and fore part of the breast and flanks are white flecked with dusky; the lower part of the back, tail-coverts, and the hinder part of the breast and abdomen are white; the tail is white marked

with imperfect black bars ; the back and wing-coverts are blackish with pale grey margins ; and the secondary quills are brown margined with white, except the long inner ones which are barred with black. In winter the colour is greyish above, and less spotted below. Immature birds resemble the adults in winter-dress, but have tawny margins to the edges of the feathers, and the chest and flanks finely mottled with black. The chick is buff above, streaked along the back with black, with a dark streak before and in front of the eye, and a black triangular patch on the crown, the under-parts being white.



MOUNTED IN THE ROWLAND WARD STUDIOS

GREENSHANK.

Greenshanks, whose presence may be recognised by the three-syllabled call uttered as a rule when they rise, haunt the margins of bays, estuaries, dykes, etc., and more rarely marshes and rivers. In England they are apparently seen in most cases singly, although in Ireland during winter they associate, as in India, in flocks, which keep much to themselves. They are some of the earliest of the waders to return from the north, both adult and immature birds sometimes making their appearance in Ireland before the end of June, although they are usually somewhat later. From its large size, the usual food of the sandpipers is supplemented in the case of the greenshank by young minnows, small frogs, and tadpoles. Always wary, alike in the breeding-season and at other times, these birds are excellent swimmers ; and a specimen pursued by a peregrine falcon has been seen to make good

its escape by diving several times, and then concealing itself among water-plants, uttering, during the pursuit, most piercing cries of terror. Hilly ground near water forms the favourite nesting-site of the species; the nest itself being a sparsely lined hollow amid a tussock of grass or among the heather or other herbage. In Scotland the eggs are generally laid in the latter part of May, but in Lapland not till well on in June; this, by the way, being rather difficult to reconcile with the statement as to the occasional return of greenshanks from the north to Ireland in the latter month. In ground-colour the somewhat glossy eggs vary from cream to pale buff, often tinged with green; the rich brown or faintly rufous markings taking the form of spots, streaks, and blotches, of which the latter tend to form a cap at the larger end, in addition to the underlying markings of faint purple. From a fraction less to a fraction in excess of 2 inches is their usual length.

The American lesser yellowshank and the greater yellowshank are referred to on p. 103.

Ruff
(Pavoncella
pugnax).

Following the course pursued in the case of the blackcock, the name of the male bird is taken in the instance of the species now claiming attention as the specific designation, although many ornithologists prefer to use the combined names—ruff and reeve—of the two sexes. The practical disappearance of the ruff as a breeding-species is a loss to the British bird-fauna almost, if not quite, as great as that of the bustard; for these birds are remarkable and interesting from three distinct points of view: firstly, the strange difference between the two sexes during the breeding-season; secondly, the extraordinary individual variation of the males, or ruffs properly so called, of which scarcely any two are alike; and, thirdly, the pugnacious habits of the cocks at the commencement of the breeding-season. It was from these fighting propensities that the ruff was long known in ornithological works as *Machetes pugnax*, a name which, on account of priority, has had to give way to the perhaps better title of *Pavoncella pugnax*—better on account of the fact that it alludes to the wonderful breeding-plumage of the cocks (by the somewhat fanciful title of “peacock-like”), as well as in retaining reference to their characteristic love of combat. Although drainage and the spread of cultivation were apparently the chief causes which led to the disappearance of the ruff as a regular breeding-species from its British haunts, the wholesale capture of these birds for the table in former days seems also to have been an important factor in

their extinction. Although the fen-lands of Somersetshire, Cambridge-shire, and Huntingdonshire, as well as certain districts in Yorkshire and Northumberland, were originally included within the breeding-area of the ruff, it is only in those of Yorkshire, Lincolnshire, and Norfolk that the nesting of these birds continued till comparatively recent times,



MOUNTED IN THE ROWLAND WARD STUDIOS

RUFF IN SPRING.

and of these haunts, the north fen near Spalding, and the east and west fens between Boston and Spilsby, were the last great strongholds of the species. Ruffs, after a long absence, are reported to have bred in Yorkshire in 1901, 1902, and 1903. In Lincolnshire ruffs were still breeding in some numbers so late as the year 1869, and they continued to do so in Hickling Broad, Norfolk, in the following year. From the former area they have apparently long since ceased to exist as a breeding-species, but in Norfolk two nests were found in 1889, and a third in 1907, in which year a second reeve probably also nested in the county. Unfortunately no

British-laid eggs are preserved in the British Museum.

Although disestablished as a regular breeding-species, the ruff is a fairly common visitor to the English fen-lands in autumn, and is also seen more sparingly on the spring migration in April, while a few stray birds now and then avail themselves of British hospitality for the winter. They are, however, nearly all aliens in place of British-born subjects. On the western side of England, as well as in Scotland, the species is everywhere much more uncommon, as it is also in Ireland, where it is chiefly seen in autumn. From what has been written above, it will be evident that ruffs in the breeding-plumage are now but seldom seen in England; and native specimens in this condition, though formerly common enough, are rare in collections at the present day, and consequently of considerable value. Ruffs breed in the

northern temperate zone throughout Europe and Asia, migrating in winter to Africa and southern Asia, where they are, however, rare to the south and eastward of the northern districts of India. Iceland apparently marks the extreme northern range of the species, but it does not breed there, although it nests in Lapland and Scandinavia, and to the southward in Holland and the north of France.

The species is the only representative of the genus *Pavoncella*, which would not be worthy of separation from *Totanus* were it not for the circumstance that the cock, or ruff, is a considerably larger bird than the reeve, or hen, and assumes by the commencement of the breeding-season in May an individually variable plumage accompanied by the development of the striking ruff of elongated feathers around the neck from which it takes its name. Another peculiarity is the polygamous habit of the ruff; a feature in which it differs altogether from other waders and resembles the game-birds, as it does in its fighting propensities.

In the breeding-season the feathers at the base of the beak are replaced by bare, pimply skin, while the long tufts which are then developed from the sides of the head of the male vary in colour from rufous, chestnut, and buff, to black and white; the black being generally shot with purple or green reflections. The frill or ruff surrounding the neck—which can be raised or depressed at pleasure—cannot be exactly described, owing to the innumerable variations which it presents. Two main types are, however, recognisable, in one of which it is of a uniform tint—white, black, chestnut, or buff, and in the other barred. In the latter, which presents the same ground-colour as in the uniform types, it may be barred or spotted with rufous, chestnut, buff, black, or grey. The colouring of the back and breast is also variable, although conforming generally to that of the cock; when the “ruff” is grey barred with black, this pattern predominates for instance on the back, while when the former is rufous, white, or black, the same is the case on the back and breast, although black feathers with paler edges are commonly intermixed with the plumage peculiar to each individual. The breast-feathers at this time are generally more or less black, but with these more or fewer white or buff-coloured ones are mixed: the abdomen, however, is invariably white and the legs are yellow. In winter the feathers of the back are brown with darker middles and paler edges, the head and sides of the face streaked with brown on a buffish white ground, and the breast white. The hens in summer have the back-feathers black with pale buffish white margins, the wings brown, the crown streaked with black, and the breast black

more or less closely mottled with white. The winter-plumage resembles that of the cock, but the hen is distinguished by her smaller size.

Young birds in first plumage resemble females in summer-dress, but have no dark feathers on the breast. The chick is rufous buff on the upper-parts, with a light central streak bordered by a dark

streak on each side of the crown, dark lines on each side of the back, and the under-parts buff.

As already mentioned, the fens and the Broads of Norfolk were the chief resorts of the ruff when it was a common British bird; and in the winter in India it is generally met with near tanks and marshes or on wet grass-land, although also occurring locally near creeks and estuaries. The fighting and "showing-off" habits of the ruffs in the breeding-season have been so often described that repetition is



MOUNTED IN THE ROWLAND WARD STUDIOS

RUFF IN WINTER.

unnecessary. At the laying-season, which commences in the first or second week in May, both ruffs and reeves put aside their habitual shyness, and are then easily taken by the fowler. The ruff loses his breeding-collar by the latter part of June, and so far as activity in flight is concerned, is much benefited by the change, as this mass of feathers sadly impedes his flying powers. Dry elevations, technically known as hills, in the midst of the marshes or fens, are chosen by the ruffs for their nuptial display. In addition to the usual food of waders, these birds, at least in India, will readily eat grain. A tussock of grass serves as a site for the nest of the reeve, which is deep and cleverly concealed; and it is noteworthy that the hens of the same "harem" always nest apart from one another. The chicks are stated

to be at first somewhat less active than those of other waders. The eggs, although larger, are very like those of a snipe ; the ground-colour varying from pale grey to olive-green, and the markings taking the form of spots and blotches of dark brown or umber, which are aggregated as a kind of cap at the larger end ; the deep-seated markings consisting of purplish-brown smears and cloudings. The ruff measures $12\frac{1}{2}$ inches in length and weighs 6 oz., while the reeve is 2 inches shorter and 2 oz. lighter. Eggs measure from just over $1\frac{1}{2}$ inches to slightly more than $1\frac{3}{4}$ inches.

Buff-breasted Sandpiper (Tringites subruficollis). Eight recorded occurrences in England during a whole century scarcely entitle Bartram's sandpiper (*Bartramia longicauda*, *Actiturus longicaudus*, or *A. bartramias*), of America, to be reckoned as a British bird, and it is accordingly only mentioned here

incidentally, without a separate inset for its name. It represents a genus by itself, characterised, among other features, by the relatively short beak and long tail. The same remark applies still more forcibly

to the case of the American half-webbed (or semi-palmated) sandpiper (*Ereunetes pusillus*), of which an example was killed in Kent in September 1907. This bird is much like a stint, but has short webs at the bases of the toes. On the other hand, it is somewhat difficult, although perhaps illogical, to refuse recognition to a third American species, namely, the buff-breasted sandpiper, of which seventeen examples were recorded in the

British Islands during the nineteenth century. This bird, which will be found entered in some ornithological works as *Tringites rufescens*, is likewise the sole representative of its genus, and differs from all the preceding members of the subfamily Totaninæ by the shortness of its beak and the complete absence of webbing between the toes. It must suffice to mention that this bird, which measures 8 inches



BUFF-BREASTED SANDPIPER.
(From a specimen in the British Museum.)

in length, may be easily recognised by the black marbling, or speckling on the inner webs of the primary quills of the wings. Of the recorded British examples up to the close of last century, four are Irish and the rest English—a very fair representative division, if we take size of territory as a basis!

Sanderling The “little bird frequenting sandy coasts” is the obvious meaning of the name of this well-known little
(*Calidris arenaria*). wader, which, together with the species last mentioned and the stints, is frequently referred to the snipe group, or Scalopacinae,



MOUNTED IN THE HOWLAND WARD STUDIOS

SANDERLINGS.

on account of the absence of webbing to the toes. All agree, however, with the sandpipers in having a distinct summer and winter plumage, and likewise in the fact that the eyes are not placed unduly far back in the head, and as these characters are obviously far more important and deep-seated than is the presence or absence of an incomplete web to the toes, these birds are here included in the Totaninae. The sanderling is evidently nothing more than a stint which has lost the hind-toe, but this is a character entitling it to be placed in a genus apart, of which it is the sole representative. The sanderling is almost a cosmopolitan bird, nesting in the high north all round the Pole, and in winter wandering as far south as Africa, India, Burma, Australia, and South America. The exact limits of the breeding-range are not at present ascertained, but the species is known to nest in Grinnell-land

(lat. $82^{\circ} 33'$), Greenland, the Barren Grounds of North America, Alaska, the Taimur Peninsula, the delta of the Yenisci, Novaia Zemlia, and Iceland, and it probably does so near the mouth of the Petchora, on the western side of the Urals.

Measuring about $7\frac{1}{2}$ inches in total length, the sanderling is specially characterised by the circumstance that while the summer-plumage is mottled chestnut and black, the winter-dress is uniformly grey.

In summer the ground-colour of the upper-parts is brownish black, with pale chestnut edges and bars to the feathers, giving a mottled appearance; the neck, throat and upper part of the breast are also of a pale chestnut, relieved by spots and streaks of brownish black, while the rest of the under-parts is white; across the wing extends a bar formed by white tips to the greater coverts, and white bars to the secondaries, some of the inner webs of which are pure white, while the outer wing-coverts are brown. In winter the upper-parts are light ashy grey relieved by fine dusky streaks, specially marked on the wing-coverts and upper tail-coverts; while the whole of the under-parts is white. Young birds in first plumage are intermediate between the summer and winter plumages of the adult, the upper-parts being black spotted and barred with buff and white, while the lower surface is tinged with buff, fading by exposure to white.

On account of breeding so far north, sanderling are compelled to travel south very early, and they reach the British coasts on their southern journey during the latter part of July or early in August, the advance parties consisting of both adult and immature birds. From April to June is the period of the northern journey, by which time the birds have assumed their summer breeding-plumage; but the species is less commonly seen at this season in Great Britain than it is in autumn. On sandy shores it may be met with all round Ireland, alike in spring and autumn; and it is believed that, as in Great Britain, a few individuals may occasionally remain for the winter. On the sandy flats from which it takes its name the sanderling may be seen, either singly or in flocks, in association with sandpipers and dunlins; and in winter may easily be mistaken for the latter species, although distinguishable by its generally lighter tone of colouring, more especially the pure white breast and shorter beak. The extreme edge of the tide forms the favourite hunting-ground of this bird, where it is constantly running in and out of the water in search of the shrimps, worms, and shell-fish which form its food. On the breeding-grounds its food consists, on the other hand, largely of insects, together with the buds

of plants. It may be added that the monosyllabic cry of the sanderling is utterly different in character from the shrieking call of the dunlin. As regards the nest and eggs, our information is very imperfect, the British Museum up to the year 1902 possessing only two specimens of the latter. The nest is apparently placed on dry ground, and may be lined either with willow-catkins or with leaves and grass. The two eggs in the British Museum have an olive-buff ground with markings of pale olive-brown, these markings in the one consisting of small, evenly distributed spots and specks, and in the other of larger spots and blotches more thickly concentrated at the larger end than elsewhere. The two specimens, which came from different localities, agree, however, in the character of the underlying purple markings. The longer diameters of each are respectively 1.33 and 1.37 inches.

Stint
(*Tringa minuta*). Although the genus *Tringa* is typically represented by the knot (to which and an allied species it is restricted by some ornithologists), the relations of the different species included within it in its wider sense are best displayed by commencing with the stint and its immediate relatives. In this extended sense the genus *Tringa* may be briefly defined as including a number of small waders characterised by having four toes, of which the three front ones are not connected at the base by webs; soft flexible slender beaks, of variable length, either straight or slightly bent downwards, with grooves in each half, and the small nostril situated near the base, nearly square tails in which the middle feathers may be pointed and slightly prolonged beyond the rest, and the lower segment of the legs rather short and covered with shield-like scales. In the long and pointed wings the first quill exceeds the others in length, but the inner secondary quills nearly equal the primaries in this respect.

The stint, which, under the name of *Limonites minuta*, will be found in some ornithological works classed as the typical representative of a separate genus, is a small species characterised by the beak and lower segment of the legs being nearly equal in length, and likewise by the approximate equality in this respect between the lower segment of the leg and the middle toe. In the tail the feathers are of equal length; the wing measures less than 5 inches in length, the shafts of all the primary quills are partially white, and the leg is leaden grey in colour; the total length of the bird is 6 inches.

Referring in more detail to the colouring of the species, it may be mentioned that in general colouring the stint is very similar to the

dunlin (see page 123), from which it may be distinguished by its inferior size. The secondary quills in the stint are, however, brown in place of partially white; and in the summer-dress the white breast has no black patch, but is tinged with chestnut on the sides. In winter the upper-parts are greyish brown, and the white under-parts tinged with grey, in place of buff in the dunlin. Young birds in first plumage resemble the adults in summer, but have the wing-coverts margined with chestnut, except in the case of the greater coverts, while the scapulars are mostly bordered with white (in place of chestnut), and the breast is unspotted. The chick is somewhat more richly coloured than that of the dunlin, and has the legs darker.

The present species is usually designated the little stint, but since it is apparently the bird to which the name stint is alone properly applicable, while there is a smaller representative of the group which occasionally visits the British Isles, it seems preferable to discard the prefix except in cases where its use is essential in order to distinguish the species from its immediate relatives. The breeding-range of the stint extends from the open Arctic lands of the Kola Peninsula, on



STINT.

the east side of Lapland, across northern Russia and the adjacent islands in the Arctic Ocean to the tundra of northern Siberia at least as far eastward as the neighbourhood of the Taimur Peninsula; while in winter the bird migrates to Africa and southern Asia as far east as India and Ceylon, where it is abundant in suitable localities. To the British Islands, where it is much more abundant in the south-eastern districts of England than in the north and west (in the latter of which it is practically unknown), the stint is a spring and autumn visitor, making its appearance, in common with so many other waders, much more frequently in the latter than in the former season. In Scotland it is rare, while to Ireland it is an autumn-visitor in small numbers,

making its appearance chiefly in Dublin and Belfast Bays. In India, where it usually arrives in August or September and departs in May, it is chiefly found in flocks on the margins of tanks, marshes, and estuaries, or on the coast.

The stint (or the dunlin) may be cited as an excellent instance of the force of example, for this bird so closely resembles the dunlin, with which it constantly associates, both in general appearance and habits, that were it not for the markedly inferior size of the present bird, it would be difficult to distinguish between the two species in their native haunts. Indeed, so identical are the habits of the two birds that as reference is made later on to those of the dunlin, it would be superfluous to make any observations with regard to the mode of life of the species now under consideration. Consequently, it will suffice to mention that the nest is a mere hollow in the turf of the tundra, sparsely lined with willow-leaves or other vegetable substances, and situated within easy distance of tidal water; and that the four eggs, which in length measure only just over an inch, have a ground-colour varying from pale greenish grey to pale brown or buff, upon which are spots and blotches, or in some instances large smears forming a cap at the larger end, of faintly rufous brown, together with inconspicuous underlying markings of pale grey. It may be added that the incubating bird displays great solicitude and performs strange antics when the nest is approached, sometimes coming almost within arm's length of the intruder on the vast solitudes in which these little waders are wont to nest.

It may be added, in conclusion, that when in the field the stint in non-breeding plumage may be recognised by the presence of a buff chevron on the back with the point directed towards the tail; the whole mark being of a lighter tint than the rest of the plumage. In the breeding-dress the mark is less conspicuous, as it also is in skins prepared for study purposes.

Temminck's Stint Since the American stint, *Tringa minutella* (*Limonites minutella* of some ornithologists), which is a considerably smaller bird than the last, had only been recorded three times from the British Isles (once in Cornwall in 1853, and twice in Devon, 1869 and 1882), up to the end of the last century, it clearly has no claim to be regarded as any more than an extremely rare straggler, and needs no detailed notice. On the other hand, Temminck's stint, known to some writers as *Limonites temmincki*, although much rarer than the little stint, is

by no means a very uncommon visitor to the east coast of England, and has also occurred in the southern and some inland counties and very rarely in the west. In Ireland there is but one, perhaps somewhat doubtful, record; and there appears also to be some degree of doubt attaching to two alleged instances of the occurrence of the species in the north of Scotland. The bird is of the approximate size of the American stint, that is to say, just over 5 inches in total length, and is thus the smallest member, not only of this group of waders, but likewise of the more typical sandpipers which have any claim to be regarded as British. In addition to its inferior size, it is readily distinguished by the fact that the shaft of the first primary



TEMMINCK'S STINT.

quill alone is white, those of the others being brown, and by the white outer tail-feathers. Although somewhat variable, the summer-plumage has the feathers of the upper-parts generally greyish brown edged with pale rufous chestnut, the middle tail-feathers dark brown, but the three outer ones white; the white tips to the greater coverts form a bar across the open wing, and the under-parts are like those of the stint. In winter the upper-parts are brownish grey, with dark middles and pale margins to the feathers. Buff margins to the feathers of the upper-parts, and a buff tinge to the white under-parts, with brown streaks on the breast, distinguish young birds in first plumage from the adult winter-dress. The chick is golden buff, with spots of black above and a dark stripe down the back, and a buff tinge on the white lower surface. Like the stint, this species nests in the Arctic districts of Europe and Asia; the breeding-range in this instance extending

from the island of Tromsø, on the west coast of Finmark, in northern Scandinavia, to the valley of the Yenisei, and perhaps farther, in the east. Similarly, the winter-range includes the south of Europe, a considerable portion of Africa, and southern Asia; the eastern extent being, however, somewhat greater, as this bird is found, although rarely, in Burma, but the southern limits rather less, the species being unknown in South Africa and scarce in the south of India and Ceylon. In England, where it is usually represented by single immature birds, Temminck's stint apparently agrees in general habits with the true stint, but in its Arctic summer-home is said to be less completely a shore-bird, and may not unfrequently be seen inland perched on a post or branch, or warbling during flight a song which, although louder and more shrill, has been compared to that of the grasshopper warbler. In addition to this song, the bird has a characteristic call-note of its own. In Tromsø it is not uncommon to find several nests within an area of a few yards of one another; these being slight depressions in the soil, lined sparsely with dry grass, and usually situated within a short distance of water. As in the case of the true stint, the incubating bird displays great boldness and tameness when the nest is approached. Since it is the cock which is said to perform the duties of incubation in the case of this species, it may be argued from analogy that the same holds good in the case of the true stint, although the sitting bird has in one instance at least been described as the female. In the case of the under-mentioned purple sandpiper the male is known to take a large share in bringing up the young, although the female may do a part of the incubating. The eggs of Temminck's stint, owing to the less inaccessible and better-known regions in which the species nests, were familiar to ornithologists long before those of the true stint were discovered. They differ from the latter in being, as a rule, somewhat paler coloured, with the markings less distinctly defined.

**Sharp-tailed Sand-
piper**
(*Tringa maculata*).

In nearly all books on birds the species we venture to designate the sharp-tailed sandpiper will be found described under the title of the "pectoral sandpiper," a truly atrocious name (derived from *Tringa pectoralis*, one of the synonyms of the species) to apply to a harmless and unoffending bird. On the other hand, the name here employed refers to a well-marked and distinctive characteristic of the species, namely, the lance-like and pointed form of the tail-feathers, more especially those other than the outer pair. In the relative shortness of the beak,

which is shorter than, or a mere fraction longer than, the lower segment, or shank, of the leg, this bird and three allied species come very close to the stints, from which, however, they differ by the length of the shank exceeding that of the middle toe. On this account they are referred by some naturalists to a distinct genus, the title of this species then being *Heteropygia maculata*. In having the shaft of only the first primary quill white, the sharp-tailed sandpiper resembles Temminck's stint; it is specially characterised by the brown legs, dark upper tail-coverts, and the presence of a dark band across the neck and chest, as well as by the slight excess in the length of the beak over that of the lower segment of the leg. In one book the length is given as ranging from $8\frac{3}{4}$ to 9 inches, in a second as 9, and in a third as 8 inches. In summer-plumage the general tone of the upper-parts is bright clay-colour, or brownish buff, broadly streaked with dusky; the fore part of the neck and breast being greyish



MOUNTED IN THE ROWLAND WARD STUDIOS

SHARP-TAILED SANDPIPER.

tinged with pale buff and streaked with dark grey, and the throat and remainder of the lower surface white. In winter the colouring of the plumage of the upper surface is more nearly uniform, the dusky markings being less distinct, and the buff-coloured areas paler. The general colouring of the plumage of immature birds is similar to that of the adults in summer-dress, but brighter, the buff being richer and the scapulars tipped with white, while the streaks on the breast are narrower.

The sharp-tailed sandpiper is an American species, of which stragglers are blown from time to time across the Atlantic to the British Isles, and it is solely owing to the number of such casual visitors that the species is here assigned a definite place in the British list. Twenty-nine instances, some represented by two or more individuals, of the occurrence of the species in the British Isles, were indeed recorded between the years 1830 and 1878; and it is not a

little remarkable that while East Anglia claims nine of these, only one falls to the share of Ireland, where the visitations of this species would naturally be expected to be more numerous than elsewhere.

Of the eastern sharp-tailed sandpiper, *Tringa acuminata* (or *Heteropygia acuminata*), of Eastern Asia, two specimens from Norfolk represent the British record for the nineteenth century. It may be distinguished from the American species by the relatively shorter beak, and the presence of white on some portions of the shafts of all the primary quills. The length is 8 inches. Nine occurrences (two represented by more than a single specimen of the bird) of Bonaparte's sandpiper, *Tringa fuscicollis* (or *Heteropygia fuscicollis*), were recorded during the same period in the British Islands, most of these being from the southern and south-western coasts of England, although one is Irish. The species is a native of North America, breeding throughout a wide range in the Arctic regions, and wintering in the West Indies and Central and South America. In appearance the bird is very like a small dunlin, from which, in addition to the general characters referred to above, it may be distinguished by the white patch formed by the upper tail-coverts. Of yet another North American member of this group, namely, Baird's sandpiper (*Tringa bairdi*, or *Heteropygia bairdi*), a single example was taken in Sussex in the autumn of 1900, while a second specimen is recorded from Norfolk in 1903. This bird ranges from America across Bering Sea to the Chukchi Peninsula.

Knot
(*Tringa canutus*).

Why the little wader which forms the typical (and, according to the "splitters," together with its eastern relative, the only) representative of the genus *Tringa*, should have been specially singled out to perpetuate the name of the one Danish sovereign who has occupied the British throne it is not easy to conjecture, seeing that there are several other sandpipers equally in the habit of running along the margin of the tide. The knot and the allied eastern species resemble the dunlin (described later) in that the beak, which has a distinct ridge on the upper surface and expands slightly towards the tip, is considerably longer than the shank or lower segment of the leg (thereby differing from the sharp-tailed sandpiper and its relatives); but are broadly distinguished by the squared tail, of which the middle feathers are not elongated. The European species is considerably smaller than the eastern knot (*T. crassirostris*), measuring 10 inches in total length, with a wing of $6\frac{1}{2}$ inches. The breeding-range of the knot includes the Arctic regions of both hemispheres, extending in the Old World at least as far east

as the New Siberian Islands. In winter the species visits the West Indies and parts of South America, Africa, Australia, and New Zealand, but is replaced in India and China by the eastern knot. To the British Islands this bird is a spring and autumn visitor, which, like so many other waders, makes its appearance much more abundantly in the latter than in the former season, its numbers being, of course, increased by the young; it is also considerably less wild in autumn than in spring. In Ireland, where it is sometimes seen in large flocks, the knot is much more abundant on the east and north coasts than on those of the west and south.

Its relatively large size, coupled with the short black beak and legs, and the white axillary feathers barred or freckled with black, serve to distinguish the knot at all seasons of the year. In the summer-dress the under-parts, except for the white middle of the abdomen and white under tail-coverts barred with brown, are chestnut; this chestnut also prevailing on the upper-parts, where it forms the margins to black feathers; the lower part of the back and the upper tail-coverts are white with a tinge of chestnut. In winter the under-parts are white flecked with grey, and the upper-parts ashy grey. Young birds in first plumage show a colouring more or less intermediate between the summer and winter dresses of their parents, the upper surface of the body being mottled with black and white, and the under surface tinged with buff and spotted with dusky brown. The down of the chick is white thickly mottled above with dark grey and black, while the head shows one dark streak running from the beak to the eye, and a second along the side of the face below the eye.



KNOT (SUMMER).

In common with the sanderling and certain other species which resort to the most remote Arctic regions where the summer is of the briefest, the knot lingers late on the British shores, where it may often be seen till May, before starting for its breeding-grounds, and returns early. Tidal harbours form the chief English resorts of this bird, where, as stated in an earlier paragraph, it often consorts with dunlins, the two species feeding together on the flats of sand or mud, and resting

In common with the sanderling and certain other species which resort to the most remote Arctic regions where the summer is of the briefest, the knot lingers late on the British shores, where it may often be seen till May, before starting for its breeding-grounds, and returns early. Tidal harbours form the chief English resorts of this bird, where, as stated in an earlier paragraph, it often consorts with dunlins, the two species feeding together on the flats of sand or mud, and resting

in company on the ridges or hummocks of shingle and spits of hard sand. The characteristically musical note of the knot has been compared to the repetition of the syllables *tui-tui, tui-tui*. The food of this species is generally similar to that of other waders with similar habits, but univalve molluscs of the genera *Turbo* and *Rissoa*¹ are stated to form a favourite portion of the diet. The eggs of the knot were not definitely identified till the year 1905, although there is little doubt some few examples had been obtained previously. In the year referred to there were exhibited in London a dozen knots' eggs and a few nestlings, which had been obtained on the Taimur Peninsula and the New Siberian Islands, together with the parent birds. Earlier in the same year a nest and eggs obtained in Iceland in 1898 were described as those of the knot; and there are two reported instances of the species having laid in captivity in England.

**Purple
Sandpiper**
(*Tringa*
maritima).

The purple sandpiper, which has been incorrectly identified with the *Tringa striata* of Linnæus, and referred to by some ornithologists under that name, is regarded by others as entitled to represent a genus by itself, and is accordingly termed *Arquatella maritima*.

It differs, however, structurally from the knot merely by the prolongation and pointing of the middle tail-feathers, while from the dunlin (in which this feature occurs) it is distinguished by the shortness of the lower segment of the leg, which is inferior in length to the middle toe, and by the fact that the feathering of the leg commences at the lower end of the second segment in place of some considerable distance above. Such differences are far too trivial to rank as grounds for the generic separation of nearly allied species of birds. The purple sandpiper in its typical form apparently breeds throughout a large extent of the Arctic regions, and in winter ranges over extensive areas on the two sides of the North Atlantic, some of its representatives reaching as far south as the Bermudas in the western, and the shores of the Mediterranean in the eastern hemisphere. Such individuals may be regarded, however, as specially luxurious birds, for the species as a whole is a remarkably hardy one, the great majority of the members of which travel a comparatively short distance southwards for the cold months, some being found at that season even as far north as the western coast of Scandinavia. To the British Islands this wader chiefly resorts for the winter, but is a somewhat uncertain and irregularly distributed visitor, much more common in some seasons

¹ In one well-known book on British birds, these are referred to as bivalve molluscs!

and localities than in others. Non-breeding immature birds are observed from time to time in different parts of the country during summer; and there is reason to believe that fully adult pairs may occasionally remain to breed in the Hebrides and Shetlands, as well as on the Farne Islands (where young birds scarcely able to fly have been taken), and the adjacent coast of Northumberland, and other northern districts. In Ireland the species is to be met with in limited numbers during autumn and winter, and occasionally so late as May. Greenland, the Färoe Islands, and Spitzbergen are well-known nesting localities.

As seen in its winter-plumage in the British Isles, the purple sandpiper may be recognised at a glance by its general bluish-lead colour; while at all seasons it is characterised by the white seventh and ninth secondary quills, the black of the lower part of the back and



MOUNTED IN THE ROWLAND WARD STUDIOS

PURPLE SANDPIPER (SUMMER).

tail-coverts, the pale yellow legs, and the extension of the feathering of the leg to the joint between the shank and the second segment. In summer the colouring of the upper-parts is very like that of the dunlin (page 123), the dark greyish brown feathers having chestnut borders, and more or less distinct white tips, while there is also a bar across the wing formed by the white tips of the greater coverts on the white bases of the secondaries; the under-parts, except on the breast and flanks, which are greyish brown tinged with chestnut, are white. In the winter-dress the chestnut disappears, and the feathers of the upper-parts acquire a purple gloss, and board grey edges, while those below develop dark middles; only the abdomen and axillaries remaining white. Young birds in their first plumage resemble the adults in summer-dress, in that they have the feathers of the upper-parts margined with buff and white, except on the crown and lower part of the back, which have the buff only. The downy young are rufous

above, spotted and mottled with black and greyish white, tinged with buff on the breast, below.

In the matter of habits the most distinctive feature of the purple sandpiper appears to be its fondness for rocky coasts in preference to the more open tracts which form the favourite resorts of other waders. Still, a stray bird or two may occasionally be seen on the mud-flats, although on low sandy beaches the species very seldom puts in an appearance. When on the rocks, it boldly dashes among the spray of the waves in search of food, only seeking shelter among the larger rocks when a gale is blowing. Frequently it will allow itself to be approached within a short distance, running among the rocks rather than taking to flight; but when once flushed, it flies rapidly at a comparatively low elevation. It is also an excellent swimmer, although it apparently never dives except when hard pressed. Its food is of the usual description, and its note is said to be not unlike that of the common sandpiper. The nest, which is placed in a slight hollow, lined, according to the locality of the breeding-place, either with moss and grass or birch-leaves, in high northern latitudes is generally situated near the shore, but in the Färoes has been taken on the moorland. The four eggs, each of which measures about $1\frac{1}{2}$ inches in length, are very similar to those of the dunlin, but of larger size, displaying the same remarkable variation in the ground-colour.

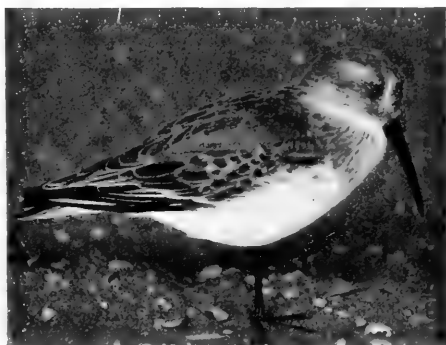
Curlew-Sandpiper
(*Tringa subarquata*).

The curlew-sandpiper, or curlew-stint as it might be better called, takes its name from the markedly curlew-like downward curvature of the long beak, by which feature it may be distinguished from all other British sandpipers, and on account of which it is referred by some authors to a genus by itself, with the name of *Ancylochilus subarquatus*. In other respects the bird is very like a dunlin. As regards the general colouring of the plumage, it may be mentioned that the most striking feature of the summer-dress is the rich chestnut of the under-parts, broken on the abdomen by white patches; the upper-parts are paler chestnut, variegated on the crown of the head and neck by dark brown streaks, and on the back by an irregular pattern of black, buff, and white spots and bars. In winter the chestnut disappears, the upper-parts being ash-coloured and the under surface white. Young birds differ from the adults in summer-dress by their paler colour, the buff margins to the feathers of the upper-parts, and a tinge of buff on the throat and upper part of the breast, which latter is streaked with brown. White tips and faint bars below

them on the feathers of the under-parts indicate young birds after the first spring moult.

In many respects the curlew-sandpiper resembles a knot, but, in addition to the shape of the beak, it may be at once distinguished by its inferior size, the length of the female not exceeding 7 inches.

The curlew-sandpiper appears to have a somewhat limited breeding-range, being definitely known to nest only in the lower course of the Yenisei in Eastern Siberia. In Europe, where it ranges as far west as Scandinavia and the British Islands, although apparently unknown in the Färoes and Iceland, it occurs as a spring and autumn migrant, more generally seen in the latter than in the former season. In winter its wanderings extend as far south as Australia, India, and other parts of southern Asia, and South Africa. In the British Islands it is commoner on the east coast of England and Scotland than elsewhere, and in Ireland, where it is always rare, is less unfrequent in the autumn than in the winter and spring: it has been observed in the southern counties of England so late as November and December. The species, both in England and India, occurs in flocks of variable size, which frequent flat shores or shingle-beaches, where they



MOUNTED IN THE ROWLAND WARD STUDIOS

CURLEW-SANDPIPER.

may either feed by themselves or associate with dunlins and other small waders. In regard to habits these birds are indeed so like dunlins, that no special remarks are needed on this subject; and at a distant view curlew-sandpipers may be easily mistaken for dunlins unless the white rump-patch is noticed. The nest and eggs of this species were first discovered on the Yenisei in July 1897. The eggs in the one clutch then obtained measured just under an inch and a half in length, and closely resembled in colour and markings those of the snipe.

Dunlin (*Tringa alpina*). Why on earth such a typical shore-bird as the dunlin, or dunling (meaning probably the little dun-coloured wader) should be scientifically designated

by such a palpable misnomer as *alpina*, passes comprehension; and in the present writer's opinion such a thoroughly inappropriate name

ought to be changed. Although markedly different in summer, and of smaller size, with a somewhat shorter beak, the dunlin in winter-dress is exceedingly like the curlew-sandpiper, from which, however, it may be at once distinguished by the dark brown rump (upper tail-coverts), and the elongation of the middle tail-feathers, which are much longer than the others. In one ornithological work¹ the beak is described as straight, and in another² as slightly bent downwards! Both in size and colouring the dunlin displays considerable variation, the females being as a rule rather larger than their partners: from $7\frac{1}{2}$ to 8 inches may be given as the average length, and 2 oz. as

the weight of females and a quarter of an ounce less that of males. Despite its slight and unimportant structural difference from both the curlew and sandpiper, the dunlin is regarded by some writers as the representative of a distinct genus, under the name of *Pelidna alpina*.

In summer the feathers of the crown of the head and back are black bordered with chestnut, while those on the nape of the neck, and the lower part of the back, as well as the wing-coverts, and upper tail-coverts, are greyish brown, darker down the



MOUNTED IN THE ROWLAND WARD STUDIOS

DUNLIN (SUMMER).

middle line; the throat and sides of the neck are greyish white closely streaked; the rest of the under-parts are white, except for a black area on the breast; and there are white tips to the greater wing-coverts and bases of the secondary quills, forming a bar across the open wing. In winter, ashy brown replaces the chestnut of the upper-parts, and the lower surface is wholly white. The hen differs from her partner merely by her superior size, and larger beak and legs, which are black. Young birds in the first plumage differ from the adult summer-dress by the lack of the black breast-patch, by the buff and white margins of the feathers of the upper-parts, and the buff

¹ Sharpe, *Handbook of British Birds*, vol. iii. p. 228.

² Blanford, *Fauna of British India—Birds*, vol. iv. p. 273.

tinge on the under surface, which is spotted with black on the breast.

Although the dunlin of Eastern Siberia and America, on account of its somewhat larger size, has been regarded as a distinct species, it seems preferable to consider such small differences as of racial rather than specific value, and the present bird may accordingly be considered as one of the comparatively few members of the group having a circumpolar breeding-range, which in Europe extends as far south as Scandinavia and the British Islands. The winter-range in the Old World includes the Mediterranean countries and a large part of southern Asia. In the British Islands the species may be said to breed in such localities as are suited to its habits where the temperature is not too high. It is found, for instance, nesting on the open moorlands of Cornwall and Devon, then again in those of Lancashire and Yorkshire, and more sparingly in Lincolnshire, and thus onwards through the other northern counties of England and Scotland, where it is locally very abundant, and the Isles. In the sister island it nests in limited numbers in parts of Leinster, Connaught, and Ulster, and on the coasts from autumn to spring is the most abundant of all the wading-birds. From the last statement it will be evident that the numbers of the dunlins resident in the British Islands are largely reinforced in winter by migrants from the north; and it may indeed well be that many of the resident British birds take a southern trip for the winter.

Except during the early part of the breeding-season, the dunlin, as already mentioned, is essentially a bird of the shore, where it may often be seen on the mud-flats, accompanied or not, as the case may be, by knots and other waders, in flocks of immense size. The feeding-time of these flocks is the ebb-tide, when the flats of mud and sand are laid bare, and it is then that these birds may be seen carefully hunting in and round every little pool for food, which comprises at this time of year shrimps, small crabs, shell-fish, marine worms, etc., although when the birds are on the moors for breeding the nutriment is, of course, entirely different in character. When the tide is in flood dunlin resort to the beach, from which they will now and then, especially if disturbed, take a short flight seawards, although most of the time is passed in dressing their feathers and sleeping in the characteristic wader-pose, that is to say, on one leg, with the beak snugly tucked beneath the wing. Although a number of immature birds may remain together all the summer, the flocks of dunlin break up into pairs before the departure to the breeding-grounds. Well concealed in

some hollow amid low heather, moss, or grass, the dunlin's nest is carefully lined with root-fibres and dry grass. The eggs, which, as already stated, closely resemble these of the purple sandpiper, although of larger size, measure from $1\frac{1}{4}$ inches to nearly $1\frac{1}{2}$ inches in length,



MOUNTED IN THE ROWLAND WARD STUDIOS

DUNLIN (WINTER).

and are very variable in colouring. Generally speaking, it may be said that the ground-colour ranges from light greenish or olive grey to full cream or even pale chocolate, and that the superficial markings, which are mostly aggregated at the larger end, take the form of spots or blotches varying in tone from reddish brown to blackish, although the underlying greyish markings are constant. The situation of the nest is never

far from water, either salt or fresh. Dunlin have not a very high repute as birds for the table. Pied phases are by no means uncommon, and at least one albino is on record. In the pairing-season dunlin, while on the wing, utter a whistling cry quite unlike the ordinary call-note.

**Broad-billed
Sandpiper
(*Tringa*
platyrhyncha).**

The dunlin occupies a somewhat intermediate position between the curlew-sandpiper on the one hand, and the broad-billed sandpiper, or broad-billed stint, as it is sometimes called, on the other; and it is this connection which justifies the inclusion of

the latter in the genus *Tringa*, of which it is the last British representative. It should be mentioned, however, that many ornithologists who regard the genus *Tringa* as including most of the species here placed within its limits separate the broad-billed sandpiper as the representative of a genus apart, under the name of *Limicola platyrhyncha*. The present species, which is such a rare straggler to the British Islands that the writer has felt some hesitation in placing its name in an inset, is a much more snipe-like bird than any of the preceding species, although it resembles other sandpipers in the position of the eye and in having a double change of plumage. As its name implies, it is specially characterised by the expansion of the stout beak, which is as broad as high, and tapers to an awl-like point, with a slight downward

curve towards the tip, and also by the circumstance that the middle tail-feathers scarcely exceed the others in length. In the summer-plumage the general colour of the upper-parts is dark brown inclining to black, mingled with rufous and white, the latter forming broad margins to the inner secondary feathers ; while the greater portion of the under-surface is white tinged with rufous and spotted with dark brown, although the hind part, or abdomen, is pure white. In its general greyish tone the winter-dress is very like that of the dunlin, but shows less white on the secondaries ; and this similarity of the plumage of the two birds at this season affords a strong argument for including them in the same genus. The plumage of immature birds resembles that of the adults in summer. Six and a half inches is the total length of the adult.

Northern Europe and Asia are the breeding-resorts of this species, which in winter visits the Mediterranean countries and southern Asia. During the nineteenth century only eleven instances of the occurrence of this bird in the British Isles were recorded, most of these being in the southern and eastern counties of England, although one is from Ireland. Yorkshire is the most northern limit recorded ; and of the eleven records, four occurred during the spring, and the rest during the autumn-migration. In the case of such a rare straggler, it would be superfluous to make any reference to habits and nesting.



MOUNTED IN THE ROWLAND WARD STUDIOS

BROAD-BILLED SANDPIPER.

**Red-necked
Phalarope
(*Phalaropus
hyperboreus*).**

For want of an English name the soft-plumaged birds constituting the genus *Phalaropus* (meaning "coot-footed") are commonly designated by an Anglicised form of their scientific title. A much better designation would, however, be lobe-footed

sandpipers, since they are in reality nothing more than sandpipers specially modified for a much more aquatic mode of life than is usual in this group of birds, although they have been called plovers. Still it is very difficult, and perhaps inadvisable, to attempt to change well-established names, and phalaropes they will therefore probably remain. By many ornithologists these birds are regarded as representing a sub-family, the *Phalaropinæ*, by themselves ; but according to the system

here followed¹ they are classed as a section of the Totaninæ specially distinguished by the presence of a looped, or scalloped, web along each side of the three front toes, and also by their habit of swimming in the open sea, sometimes even out of sight of land. Three species are known, each of which has been made the type of genus by itself, although this seems a somewhat unnecessary refinement in classification. Two are circumpolar species, while the third, except for stragglers, is American. In all three species the cocks perform the duties of incubation, and, as is usual in such cases, are inferior in point of size and



MOUNTED IN THE ROWLAND WARD STUDIOS

RED-NECKED PHALAROPE (FEMALE).

the development of the summer breeding-plumage to their emancipated partners.

The red-necked phalarope, which is the type of the group, is a bird measuring about $7\frac{1}{2}$ inches in length, with a slender sub-cylindrical beak, of which the tip is narrower than the shank of the leg, which latter is longer than the middle toe and claw. In her summer-plumage the hen is dark bluish or leaden grey above with a streak of buff on each side of the fore part of the back, a patch of rufous on each side of the neck, and white tips to the greater wing-coverts, forming a conspicuous bar across the wing; while the flanks are slaty, and the rest of the under-parts white. The cock displays

¹ Blanford, *Fauna of British India—Birds*, vol. iv. p. 280.

somewhat less brilliant tints than his partner, and here the rufous patches are divided in part by a slaty area; in winter both sexes lack the buff and rufous areas; and immature birds are generally similar to the cocks in autumn, but have yellowish margins to the feathers of the upper-parts. The chick in down is bright golden yellow, with longitudinal stripes of black.

The main breeding-area of this species includes the northern parts of both hemispheres, but extends southwards as far as Ireland in the Old World; Alaska, Greenland, Iceland, Norway, and the Yenisei valley may be mentioned as well-known breeding-resorts. In winter these birds visit the shores of southern seas. Within the British Isles up to the year 1903 the species was only definitely known to nest in the Orkneys, Shetlands, and Outer Hebrides, but in that year was recorded as breeding in Ireland,¹ where, strange to say, it had been previously known only as a rare straggler. This discovery took place in the west of Ireland in the spring of 1902, where several nests were seen, and a chick sent to the Dublin Museum for the purpose of making sure that the species was correctly identified. According to the testimony of the keeper on the estate in question, these birds have been in the habit of breeding in the bogs there for many years, although the fact was previously unknown to ornithologists. The tameness of the parent birds, and their vigorous and pathetic efforts to defend their offspring, were very noticeable.

Except in the aforesaid localities, where they are far from common, the red-necked phalarope visits the British Islands only as a migrant, and is more abundant in autumn than in winter. At the latter season these birds may be seen in the warmer seas of both hemispheres swimming in flocks, often at a considerable distance from land, and are then very hard to approach within range. On the other hand, when the pairs are frequenting the small tarns on the moors to which they resort in the breeding-season, their tameness is no less remarkable than is their wariness at other times of the year. As is usual with birds in which the cock does the work of incubation, the courting falls to the share of the hen, who is an adept at showing her nuptial plumage to the best advantage in order to attract her, may be unwilling, partner. In the Orkneys the nesting-season does not commence till June is well advanced. The nest in the Orkneys is described as being situated in tufts of grass near water, and of the approximate size of that of a titlark, but much deeper. The four eggs,

¹ Williams, *Irish Naturalist*, vol. xii. p. 41 (1903); see also H. S. Gladstone, *British Birds* (the serial), vol. i. p. 174 (1907).

which measure between 1 inch and $1\frac{1}{4}$ inches in length, vary in ground-colour from olive-buff to buffish brown of different shades, and are somewhat thickly marked with spots and blotches of blackish and chocolate-brown, with faint underlying shadings of pale purple; in many cases the brown markings are larger and more numerous at the larger end of the egg.

Grey Phalarope
(*Phalaropus*
fulicarius).

The grey phalarope, the *Erymophilus fulicarius* of some ornithologists, is a rather larger bird than the last, from which it is readily distinguished by the flat beak, which is broader than high, and also broader than the shank of the leg, which latter is not longer than the middle toe and claw. The toes are also half-webbed with larger lobes,



MOUNTED IN THE ROWLAND AARD STUDIOS

GREY PHALAROPE.

while the back of the shank of the leg is serrated. There is likewise a greater difference between the summer and winter plumages, the former being distinctly red and the latter grey; a feature in which the present species agrees with many mammals, such as the roebuck and the white-tailed deer, thus serving to confirm the view that a change from red in summer to grey in winter is a law of animal coloration, although occurring, of course, only in certain instances.

The breeding-range of this species is circumpolar, but more exclusively Arctic than that of its red-necked cousin, apparently not

reaching in the Old World south of Iceland. To the British Islands the bird is, therefore, known solely as a migrant, and that a very irregular one, being generally a rare visitor, but occasionally making its appearance in considerable numbers. Like most birds breeding in the far north, the grey phalarope (the red phalarope, as it is called, from its summer-dress, in America) wanders far to the south in winter, having been recorded from New Zealand in the eastern, and from Chili in the western hemisphere. In England the species is least uncommon on the southern and eastern coasts, and is seldom seen north of Norfolk, although it reappears in Scotland and the Orkneys. To Ireland it is an occasional autumn and winter visitor.

In the breeding-dress the grey phalarope, and more especially the hen, may be described as sandy buff streaked with black on the upper-parts, the crown, nape, and region of the eye wholly black, the lower part of the back slaty, the rump and upper tail-coverts chestnut marked with black, the wing-coverts slaty blue and white (the latter forming a bar across the wing), and the sides of the neck and under-parts chestnut. The paler-coloured cocks have the head more like the back, and much white on the throat and breast. The winter-plumage of both sexes is light pearl-grey above, with a black patch on the nape of the neck, and white on the under surface. Immature birds, which are those generally seen in Great Britain, resemble the adults, but have merely buff margins to the black feathers of the upper-parts and a broad black horseshoe-mark on the crown. The chick is golden yellow striped with black, but shows a buff stripe above the eye, and a black-bordered chocolate crown.

In general habits this species appears to be very similar to the last, but in America is said to associate in larger flocks. Its food in winter consists of small marine crustaceans, and in summer of aquatic insects. The eggs differ from those of the red-necked species merely by their superior size.

The alleged occurrence of a specimen of the long-billed Wilson's phalarope, *Phalaropus* (or *Steganopus*) *tricolor*, of America, in Leicestershire, appears to be based on a mistake.

Woodcock
(**Scolopax**
rusticola).

With that unrivalled bird (both as regards sport and the table) the woodcock, we come to the first representative of the snipe group, or subfamily Scolopacinae, as here understood; for, as already

mentioned, certain writers include in this group some of the birds here classed with the Totaninae. In the present sense of the term, the

Scolopacinae are broadly distinguished from the latter group by the backward position of the eye, and the absence of a distinct summer breeding-plumage. The eye is always large, and placed only just in advance of the aperture of the ear or even below it; the beak is long, slender, and richly furnished with nerves; while the length of the short shank, or lower segment of the leg, never exceeds that of the middle toe and claw. Like the stints, the three front-toes are free. In habits these birds, as a rule, are largely nocturnal, or rather they become active with the falling shades of evening. With the exception



MOUNTED IN THE ROWLAND WARD STUDIOS

WOODCOCK.

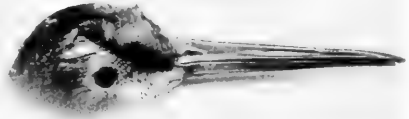
of the painted snipe, which is unknown in the British Islands, the two sexes are alike. The woodcock is distinguished from the snipes by the fact that the feathering of the leg reaches down to the joint between the shank and the second segment of the leg, and also by the absence of pale longitudinal stripes on the feathers and the transverse barring of the back of the head and nape of the neck. The aperture of the ear appears to open in advance of the eye. The wings are also more rounded, with the first quill the longest, and the short tail has twelve feathers. Two species of woodcock inhabit the Old World, one of which is confined to Java and New Guinea, while the other ranges over Europe, northern Asia, and the Himalaya, migrating in winter to the south of Europe, northern

Africa, and southern Asia, inclusive of India and Burma. Although in Scandinavia this species ranges to the Arctic Circle, elsewhere in Europe it does not extend beyond lat. 65°, while in Asia it seems to be limited by lat. 60°. As a breeder it is thus in no sense a bird of the extreme north; and, what is more remarkable, while it does not nest in the Orkneys and Shetlands, it breeds commonly in such southern islands as Madeira, the Azores, and the Canaries. In wooded localities it breeds sparingly throughout the British Isles, but apparently more frequently at the present time than in former days. An important fact in the history of the species is that during the great spring-migration, when large flights of these birds pass over Great Britain and Ireland, nesting has already commenced in many localities. This suggests that some of the British-breeding birds, which occupy a point near the middle of the north and south range of the species, do not migrate, although it is practically certain that others are migratory. Of the migrants, even larger flights are met with in autumn than in spring, the autumnal "rush" taking place in October and November. In America the woodcock is represented by a species regarded by some ornithologists as forming a genus by itself, under the name of *Philohela minor*.

Alike as regards size, weight, and colour, the woodcock is an extremely variable bird. As a rule, the hen appears to be rather larger than the cock; but the average length may be put down at 14½ inches, and the weight at 12 oz., although much heavier birds are on record. As regards colour-variation, pale phases and pied individuals are by no means uncommon, while pure white examples are occasionally obtained. In normal birds, which have the winter-plumage somewhat darker than the summer-dress, the general colouring of the upper-parts is reddish brown, variegated with dark umber-brown or black; the back of the head and adjacent part of the neck show three nearly equal-sized patches of rich dark brown, separated by the aforesaid yellowish-brown transverse bars; and the whole under surface is pale wood-brown, finely barred with darker brown. Immature birds, which are darker than the adults, may be recognised by the presence of tawny markings on the outer webs of the primary quills, which give the appearance of notches; the outer web of the first primary being always uniformly coloured in the adult, and variegated in the young. The down of the chick is rufous, with a broad patch of chestnut on the crown of the head, a band of the same colour bordered by buff down the middle of the back, three narrower bands on the sides, and the under-parts paler than the back.

The woodcock is essentially a shy and skulking bird in the day-time, and is often flushed only with difficulty; when once on the wing its flight is, however, strong and rapid, and the manner in which one of these birds will make its way at best pace, to the cry of "cock! cock!" from the beaters, between the closely set stems of a thick covert, is little short of marvellous. On the other hand, woodcock which have just arrived from a long journey, either by land or sea, are frequently almost exhausted, and fly with a slow flapping flight, utterly unlike their normal dashing course; and the present writer well recollects flushing a pair of these birds in the Himalaya, when in such a condition, without having the slightest suspicion that they were woodcock, and, consequently, never firing at them. On migration woodcock fly at a great height, from which they drop suddenly on their selected halting-place; and, in consequence of this, they escape capture in the flight-nets set in many parts of the country during the season of migration. Although skulking in covert for most of the day, male woodcock are accustomed, and more especially during the breeding-season, when they become quite bold, to dart up and down the glades of the forest soon after dawn, and again at dusk, uttering from time to time a peculiar kind of whistle. For concealment among fallen leaves, and more especially those of the beech, the markings and colouring of the woodcock are most perfectly adapted; and he must, indeed, be sharp-sighted who can detect one of these birds when skulking on the ground, or sitting on its nest, unless, indeed, it be betrayed by the glint of the full black eye. As a rule, the woodcock is a solitary bird; its feeding-time is at night, when, it sallies forth from covert to visit the marshes outside, or the bogs within the forest itself, there to search for worms, grubs, and insects, by probing for them in the soft mud with its long and sensitive beak. Indeed, an experienced field-naturalist or sportsman will often ascertain the presence of "cock" in a district by the holes made by their beaks in the mud of the swamps or other moist situations. In connection with woodcock-shooting, which commences on August 1 and terminates, except in Essex, on March 1, it may be mentioned that many sporting dogs will not retrieve these birds. That woodcock will at times carry their young, apparently by pressing them with the beak and feet against the breast, seems undoubted, but some hesitation may be permitted before definitely accepting the statement that they habitually transport the chicks to and from the feeding-grounds. So rapid is the flight of woodcock that one of these birds has been known to smash a pane of plate-glass, while a second impaled itself on the vane of a church

weathercock. Occasionally these birds will perch on trees, and one instance, at least, is known of a woodcock alighting on the sea, from which it rose without apparent difficulty. The nest, which is well lined with dead leaves and grass, is placed in the usual hollow; and the eggs are generally laid in April, although they have been found at the beginning of March. In shape the eggs do not, by any means, always preserve the peg-top form characteristic of those of the family in general, but may be oval. They are well glossed, with a ground-colour varying from cream or greyish white to pale buff, and spots, blotches, and cloudings of yellowish and umber-brown, and conspicuous deep-seated markings of purple more than usually prominent. From just over $1\frac{1}{2}$ to a fraction short of 2 inches are the limits of their length.

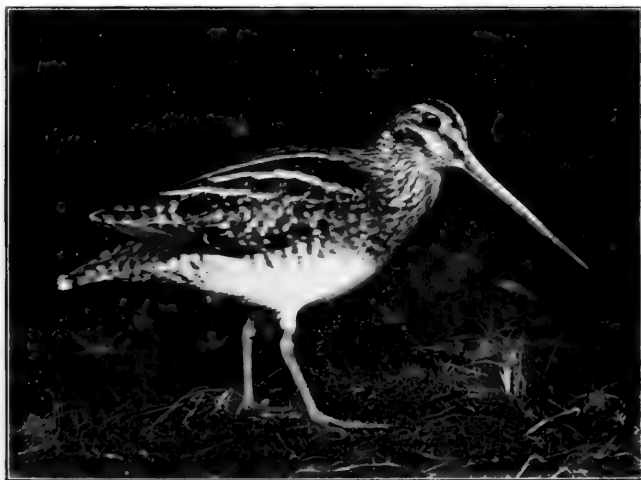


HEAD OF WOODCOCK, SHOWING EAR.

Snipe In conformity with the practice adopted in similar instances, the typical representative of the genus (*Gallinago cœlestis*). *Gallinago* is here designated simply the snipe, the prefix common, or fan-tailed, being reserved for use only when required to distinguish between this and other species. Whether the division of the snipes from the woodcock (*Scolopax*) as a separate genus is altogether advisable may perhaps be open to question, but as this is very generally done, the same course is here followed. From the woodcock snipe are distinguished by the legs being bare of feathers for some distance above the upper end of the shank; and likewise by the circumstance that the markings on the head, as on the scapular region of the body, take the form of pale longitudinal stripes instead of transverse bars in the former and blotchings in the latter region. Another difference is that the secondary quills of the wings are as long as the primaries. The number of tail-feathers varies from twelve to twenty-eight. The genus is represented by some twenty species, with a collectively world-wide range.

The snipe is the *Scolopax gallinago* of Linnæus, and hence the *Gallinago gallinago* of many modern ornithologists. In the case of such a well-known bird any detailed description would be unnecessary, and it will accordingly suffice to state that the present species usually has fourteen tail-feathers, measures $10\frac{1}{2}$ inches in length, and generally

weighs between 4 and $4\frac{1}{2}$ oz., although specimens of 5 oz. are occasionally met with, while two or three still heavier examples are recorded. A dark phase has been regarded as a distinct species, under the name of Sabine's snipe; and in the extreme development of this type the normal buff stripes on the edges of the scapulars are wanting, as is also the stripe above the eye. Of the fifty-five known examples of these melanistic snipe, thirty-one were killed in Ireland and twenty-two in England, while of the remaining pair one came from Scotland and the other from the Continent. We thus have an interesting case



MOUNTED IN THE ROWLAND WARD STUDIOS

SNIPE.

of the restriction to a moist region of an occasional black phase; melanism, or blackness, in animals normally light-coloured being most developed in humid districts. Two examples of white snipe are known; and the British Museum possesses a very beautiful pied specimen remarkable for the symmetrical arrangement of the dark and light areas. Immature birds differ from the adults by their more rufous tone of colour, and the narrower pale stripes on the scapular region.

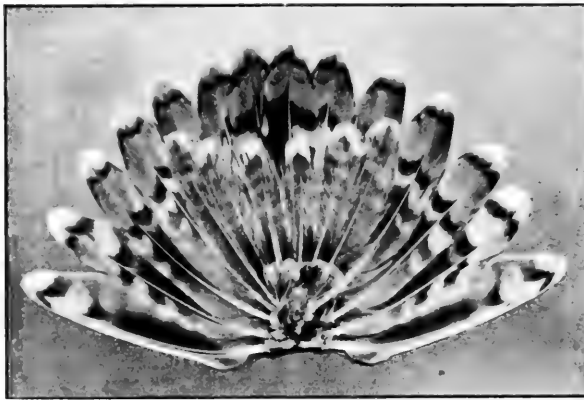
The breeding-range of the snipe includes the greater part of Europe, extending southwards, it is reported, to the marshes of northern Italy, while in Asia it reaches at least as far east as Turkestan and the eastern portion of Mongolia; northwards, latitude 70° appears to be about the limit. Throughout the more temperate

portions of this extensive area a considerable number of snipe are resident, but those breeding farther north migrate southwards in autumn, journeying to the Mediterranean countries and southern Asia, inclusive of China and Formosa. In India snipe are met with in immense numbers during the cold weather, arriving in the northern parts of the peninsula in the latter part of September and October, and departing again, as a rule, in March. There is, however, strong evidence that a few occasionally remain to breed in the plains. November appears to be the month in which migratory snipe from the north make their appearance in the southern half of England; those seen earlier in the year on the moors being native-bred. Throughout the British Islands these birds nest locally; in the more northern parts frequently at a considerable elevation.

During an unusually cold winter the present writer once flushed a snipe in broad daylight among turnips in his own garden; but these birds are, as a rule, more or less nocturnal, and frequent marshy ground, where they associate in "whisps," and feed mainly on worms, obtained by thrusting their long sensitive beaks into the yielding soil. In addition, their food comprises the larvæ of water-insects, freshwater crustaceans, and marsh-snails. Although they move about in the early morning and again at evening, they spend the greater part of the day skulking among the decaying stalks and other vegetation of their haunts, often reposing on floating masses of this nature, but not on the water itself. They will often lie close till almost trodden upon, but it must be a sharp eye indeed that can detect a reposing snipe, even though it be only a few feet distant. When flushed they fly rapidly and strongly, uttering a peculiar kind of hissing whistle; on the hot plains of Bengal the flight is usually straight; but in colder countries, especially when a stiff breeze is blowing, the first portion consists of a series of darts in directions at considerable angles to one another. In India the members of a whisp, after being fired at, will frequently circle round the marsh before settling so as to allow another shot.

The "drumming" or "bleating" of snipe is a peculiar sound produced most frequently in the breeding-season, as they descend rapidly in the air. One theory is that the noise is made by the puffs of air produced by the wings striking against the tail-feathers, a second that it is the result of the vibration of the outer tail-feathers alone, and a third that it is due to the vibration of the primary quills of the wings. According to a recent author it is due to the tail-feathers. As the result of experiment, it was found that if the feathers were attached to a cork in a special manner, the peculiar bleating sound could be

produced, and, furthermore, that only two feathers are the active agents in producing the sound. Observation proved that these two feathers were held in a particular manner in front of the others during the bird's flight in the breeding-season. Feathers of both male and female were found to produce the sound—a fact borne out by numerous observers in the field. These feathers have a peculiar structure, differing



SNIPE'S TAIL.

materially from the others in the tail. Microscopically, they differ in the number of hooklets being in excess of those in the other feathers. Sound is also produced by the tail-feathers of certain foreign species, but this is not the case with those of the jack and the great snipe. A cup-like

hollow, sparsely lined with grass, in moss, turf, or rushes serves to contain the four eggs, which are usually large in proportion to the bird, measuring slightly more than $1\frac{1}{2}$ inches in length. In ground-colour they range from a greyish green to stone and brownish buff, upon which are spots and blotches of various shades of brown, occasionally with a reddish tinge, and underlying markings of pale grey or purple; the markings being larger at the other end, where they form a kind of cap.

Great Snipe From the typical representative of the group the great snipe, as implied by its name, is distinguished by its superior size, the total length being 11 inches, and the weight averaging from $7\frac{1}{2}$ to 8 oz., but occasionally reaching as much as 10, or even slightly over. In addition to this, it differs by having sixteen in place of fourteen tail-feathers, relatively shorter legs, more heavily barred under-parts, white tips to the wing-coverts, and white outer tail-feathers. In immature birds, however, the latter have dark bars on a white ground, whereas in the common snipe the ground is mottled and of a rufous tinge. In winter the buff edges of the feathers of the upper-parts are broader than in summer. The chick is rather paler-coloured than that of the common snipe.

The northern limit of the range of this snipe in Scandinavia is the same as that of the typical species, namely 70° latitude. From Scandinavia the breeding-range extends southwards to Holland and the north of Germany, and eastwards to the valley of the Yenisei, where the northern limit is between 66° and 67° latitude. To the British Islands the great snipe is a casual visitor in autumn, mostly in the shape of immature birds, which are less easy to distinguish from



MOUNTED IN THE ROWLAND WARD STUDIOS

SOLITARY SNIPE (MALE).

the ordinary species than are adults. The eastern and southern counties of England are the districts where this snipe is least uncommon ; in Scotland it is very rare, and from Ireland only a dozen examples were recorded up to the close of last century. There is nothing calling for special notice in regard to the habits of this snipe.

Although the evidence does not seem altogether free from doubt, it is not improbable that two or three examples of the North American Wilson's snipe (*Gallinago wilsoni*) which also has sixteen tail-feathers, may have been taken in the British Isles.

Jack-Snipe
(*Gallinago*
gallinula).

From the circumstance that the lower border of its breast-bone, or sternum, has four in place of the usual two indentations, the jack-snipe is sometimes separated from the other species under the name *Limnocyptes gallinago*, but this appears somewhat unnecessary. In

addition to this peculiarity, the jack-snipe differs from its kin by the lack of a pale longitudinal band on the crown of the head, and the reduction of the tail-feathers, which are uniformly coloured, soft, and pointed, to twelve. It is smaller than the common snipe, measuring only $7\frac{1}{2}$ inches in length, and weighing not more than $2\frac{1}{2}$ oz. The hen is slightly duller in colour than the cock, but does not apparently exhibit that inferiority in size characteristic of the great snipe. In winter the under-parts display a grey tinge; immature birds lack the green and purple reflections of the adults.



MOUNTED IN THE ROWLAND WARD STUDIOS

JACK SNIPE (MALE).

The jack-snipe breeds in the far north of the eastern hemisphere, mainly within the Arctic Circle, and passes the winter in temperate and southern Europe, northern Africa, and southern Asia, where it is abundant in northern India, although scarce in Ceylon and Burma. To the British Isles, where it remains from the end of September or early in October till March or April, it is known solely as a visitor; in the bogs of Ireland it is decidedly less numerous than the ordinary snipe. As a rule, it is a solitary bird, with an affection for particular spots, and lies very close, rising when flushed with a peculiar fluttering flight, quite silently, and soon settling again. In India, at any rate, it affects places with thicker covert in the form of grass or reeds than the ordinary snipe, and likewise prefers damp to wet situations in

which to settle. Although all snipe lay relatively large eggs, the relative proportion between eggs and bird is most marked in the present species, a clutch of four of the former being reported to weigh an ounce and a half, or not more than three-quarters of an ounce less than the parent bird. In this connection it may be mentioned that birds whose young are hatched in an advanced and active condition lay proportionately larger eggs than those whose young are callow and helpless. A snipe, for instance, is about the size of a blackbird, but its eggs are very much larger than those of the latter. The nest and eggs of the present species were first obtained in Lapland. By epicures the flesh of the jack-snipe is considered superior in flavour to that of other species.

Common Gull
(*Larus canus*).

The ordinary gull, or sea-mew, is the typical representative not only of the gulls in general, but likewise of a group of birds comprising the gulls, terns, or skuas, but excluding the petrels, whose superficial resemblance to the three former is due to adaptation to the same mode of life, and is in no way indicative of genetic affinity. This group, the *Gaviæ* (or *Larifformes*, as it is called by some writers), is so closely allied to the waders, or *Limicolæ*, that many authorities consider that the two should be regarded merely as a section of a single group, since both agree in almost all essential structural features. A convincing proof of the near relationship of the gulls and terns to the waders is afforded indeed by the similarity between their eggs, which is so close that many of the so-called plovers' eggs of the dealers are really terns' eggs. It is true, on the other hand, that the gulls, as the entire group may often be conveniently termed, differ from the waders by the more or less complete webbing of their toes; but this is purely an adaptive feature, due to the more aquatic habits of the former, although, as a matter of fact, the avocet exhibits an almost complete transition in this respect between ordinary waders and certain representatives of the terns. The colour of the adult plumage of the two groups is again markedly different, that of the gulls and terns being characterised by the prevalence of pearly grey and white, relieved in many instances by dark brown or black on the head or back, or both together. This, however, is obviously a special adaptive modification to the marine habits of the group, just in the same manner as the mottled greys, browns, and blacks of the waders are specially suited to the environment of that group. In this connection it may be noted that the uniformly mottled grey plumage of immature gulls and terns is far

less widely sundered from the wader-type than is the dress of the adults. The terns, it may be observed, connect the group with the waders, although it is more convenient to commence the series with the gulls, or typical members.

In addition to the general prevalence of grey and white, with in many cases more or less black or brown, in the plumage, at least in summer, gulls, terns, and skuas are characterised externally by the generally medium length of the beak, the fully webbed feet, the small size (or even occasional absence) of the hind-toe, which is never included in the webbing of the other toes, and is raised slightly above their level. The wings are long, with eleven primary quills, of which,

however, the terminal one is so small as to be inconspicuous and easily overlooked; the tail invariably has twelve feathers; the feathers are provided with after-shafts, the oil-gland on the rump is tufted, and the feather-bearing tract on the neck is defined by bare lateral areas, and forms a fork as it passes posteriorly on to the back. Among anatomical features, it



MOUNTED IN THE HOWLAND WARD STUDIOS

COMMON GULL.

may be noted that the apertures in the skull for the nostrils (which are themselves pervious) take the form of long slits; and that the lower part of the intestine is furnished with a pair of blind appendages, which are, however, small and functionless in the gulls and terns. The eggs, which are few in number, and laid either on the bare ground amid stones or in a scanty structure of grass or seaweed doing duty for a nest, but occasionally in the deserted nests of other birds in trees, are double-spotted like those of the waders; and the down-clad young are active and capable of running as soon as hatched, although they are fed by their parents for the first few days after their appearance in the world. As every one knows, gulls, terns, and skuas are essentially birds of the sea, carnivorous, or perhaps rather omnivorous in their diet, and spending most of their time on the water or in the air, although during the daytime frequenting dry

sandbanks for repose. Nevertheless, they frequently resort to newly ploughed land in the neighbourhood of the shore, while in bad weather, and more especially in winter, flocks of them may be seen far inland, either hunting over lakes or rivers, or following the plough in search of worms and grubs. While on the wing they continually utter the wild plaintive cries from which they derive their name of sea-mews. Although terns catch live fish, gulls feed chiefly on dead fish and garbage when at sea, while skuas are predatory birds subsisting on flesh.

The family Laridæ, which includes both gulls and terns, as distinct from the skuas, is characterised by the absence of a bare waxy band (the "cere") at the base of the beak, the moderately curved and comparatively blunt claws, the rudimentary condition of the pair of blind appendages ("cæca") to the intestine, and the presence of two notches on each side of the lower or hind border of the breast-bone or sternum. From the terns, the gulls, which constitute the subfamily Larinæ, are distinguished by having the upper half of the stout, moderately long, compressed, and curved beak longer than the lower, over the tip of which it is usually bent down. The oblong nostrils are situated some distance in advance of the base of the beak; the shank, or lower segment of the leg, has transverse shield-like scales on its front surface; the hind-toe is small (wanting in one genus); and the wings, which when closed extend beyond the tail, have the first primary quill the longest. Many of the species are migratory. The gulls, included in the typical genus *Larus*, of which there are something like forty species, with a collectively almost cosmopolitan distribution, in addition to the above-mentioned characteristics of the subfamily, have squared tails.

The common gull is the smallest of the British species of *Larus* which have no black on either the head or the back; the males measuring only about 18 inches in length, with a wing-length of under 14 inches. It is an Old World species, ranging from western Europe, inclusive of Iceland (where, however, it is rare), eastwards along the northern coast of Europe and Asia to Kamchatka, Japan, and China; its breeding-range extending about as far south as 53° N. lat., that is to say, the latitude of Ireland, and as far north in Europe as the North Cape (within the Arctic Circle), and in the Petchora and Yenisei valleys at least to lat. 66°. In winter it forsakes its extreme northern limits to visit the shores of the Mediterranean, the Nile valley, Persian Gulf, and elsewhere; and it is at this season that it is most abundant on the southern coasts of England, which in summer are deserted by

all the immature birds for colder latitudes. It is this species which in winter may be so often seen far inland in England on freshly turned arable lands. Its breeding-haunts in the British Islands appear to be restricted to Ireland and Scotland and the Isles, inclusive of the Hebrides, Orkneys, and Shetlands. Sanday Island, off Inverness-shire, is a favourite resort ; and both in Scotland and Ireland the species nests on inland lakes as well as on the coast.

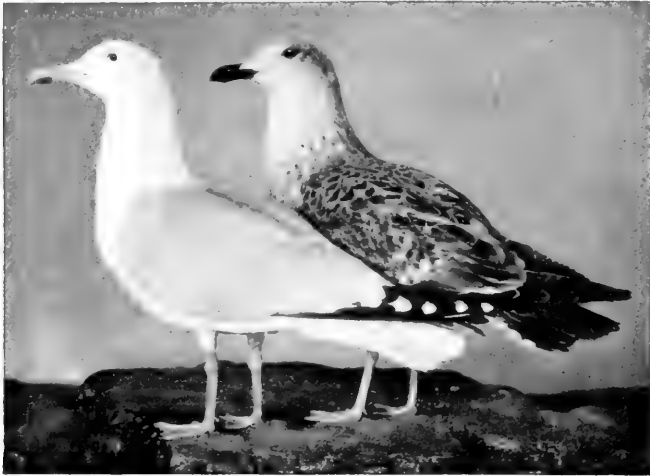
Eighteen and a half inches is the approximate length of the male bird, the hen being about an inch less. In summer the head, neck, tail, and tail-coverts, together with the lower surface of the body, are white ; the back and wings pearl-grey, the outer primaries black, with a large white spot near the tip of the first and second, and occasionally the third quill ; the beak is greenish yellow at the base, and yellow at the tip ; and the eye golden brown, with a red rim to the eyelid. Young birds are brown with white or buff bars and margins to the feathers, the lower-parts and under surface of the wings white mottled with brown, and the primary quills and a broad band across the tail dark brown. After the first moult a small white spot appears on the first primary, which increases in size after the next moults, and is accompanied by a similar spot on the second, and sometimes the third quill ; at this age the beak is yellowish brown with a black tip. The chick is greyish buff speckled with black.

The habits of all the more typical gulls are so similar, and at the same time so well known, that but few remarks in addition to the general observations already recorded are called for in the case of any of the species. The common gull appears, however, to be specially fond of nesting on the shores of freshwater lakes, or on islands contained therein ; and the nest, which is a rude structure of grass or seaweed, is generally placed in the open, although occasionally on a ledge of a gently sloping cliff. The statement that nests have been found on precipitous cliffs appears to be erroneous ; but a boulder or headland of rock projecting into a lake is a favourite site. Not unfrequently the nests are in colonies. The young are hatched in June. In some districts this gull is reported occasionally to save itself the trouble of constructing a nest for itself, and to make use of the deserted nursery of a crow or other large bird, even when placed high up in a tree—a situation in which the usurper will make itself thoroughly at home, as it perches on boughs without difficulty or discomfort. The eggs, of which there are three in a clutch, measure from 2.15 to 2.65 inches in length, and have a ground-colour varying from cream or olive-buff to olive-brown, with dark brown or blackish

spots and blotches, usually evenly distributed, and underlying markings of grey or pale purple. Rarely an egg with a blue ground occurs.

Herring-Gull
(*Larus*
argentatus).

The herring-gull, which may be roughly described as a larger edition of the common gull (having a total length in the male of over 22, and a wing-length exceeding 16 inches), is much less intolerant of summer heat than the latter, and may accordingly be found breeding on the southern coasts of England, where (with the kittiwake) it takes



MOUNTED IN THE ROWLAND WARD STUDIOS

HERRING-GULLS (ADULT AND IMMATURE).

the place of its smaller cousin in summer. Its range includes both sides of the Atlantic, extending in the Old World as far east as the White Sea, and as far south in winter as the Black, Caspian, and Mediterranean Seas; while in the western hemisphere the species may be found in summer as far north as Labrador and Greenland, and in winter as far south as the West Indies and Central America, where it probably crosses the continent to meet a closely allied Pacific bird. In both hemispheres its southern breeding-range is approximately limited by the 40th degree of north latitude, as it is found nesting in the Azores, although on the European continent it does not apparently breed south of the northern coast of France. On the British coasts it may be found breeding everywhere in suitable situations, from the southern coasts to the Orkneys and Shetlands, as well as in Ireland, where it is the most common and most generally distributed gull during the nesting-season.

A notable feature in regard to this species is that it takes four years to arrive at full maturity, so that the number of birds in the speckled immature plumage is very great.

In this gull, which does not exceed $24\frac{1}{2}$ inches in length, the back and wing-coverts are pale pearl-grey; the rims of the eyelids light yellow; the legs and feet flesh-coloured; the head, neck, and under-parts white; the exposed portions of the primary quills, when the wing is closed, black, and the tips white (instead of black in the first and second, as in the common gull); while the secondaries and scapulars are likewise white-tipped. In birds of the year the upper-parts are mottled with buff and brown, the tail is whitish with dark brown bars, and the quills are sooty brown. In the second year the upper-parts assume a greyish tinge and are barred with brown, the head is nearly white with brown streaks, and the primaries show faint white tips; in the third year the back-feathers are pale grey streaked with brown, and there is more white on the outer primaries; by the fifth year the full adult dress is acquired. The chick is greyish buff, streaked and spotted above with black.

The most noticeable feature in connection with the breeding-habits of this species is that it almost always nests in the neighbourhood of the shore, generally on tall cliffs; in Ireland, indeed, no inland nesting-place is known, and it is only occasionally that gulls of this species make their appearance even temporarily at any distance away from the shore. The nests are often congregated in colonies. The species derives its English name from its partiality for fish, and its habit of following in large flocks the shoals of herrings as they approach the shore; the gulls as they fly screaming round and round, sometimes forming a cloud above the moving mass of fish, from which toll is from time to time taken. Not that it is to be supposed that this species subsists exclusively on fish; on the contrary, it is an inveterate robber of other birds' eggs, and has been known to make a clean sweep of the contents of a cormorant's breeding-place. These gulls are also in the habit of attacking rabbits and smaller birds, and have been known to frighten even a peregrine falcon and make it relinquish its prey. Shell-fish are also stated to form a part of the diet of these gulls, as is demonstrated by the heaps of comminuted shells disgorged on the spots they frequent. Unlike kittiwakes, herring-gulls do not crowd their nests together; and prefer sloping surfaces between two steep portions of a cliff, to the ledges on the scarped face of the cliff itself, which are so specially favoured by the

former species. On the Farne Islands these gulls sometimes nest in association with lesser black-backs. Although in some cases slight, the nest may consist of a large loosely knit mass of grass and seaweed. The eggs, usually three, but sometimes two in number, are not unlike those of the common gull in colouring, but are subject to much greater variation, and thus resemble those of the lesser black-back, from which they may be distinguished by their superior size, the length ranging between $2\frac{1}{2}$ and 3 inches.

On South Saltee, in Ireland, is a well-known colony of herring-gulls and lesser black-backs, which extends straight across a hill of a couple of hundred feet in height from one side of the island to the other. The nests occur in greatest number on the slopes, where they occupy all available nooks and crannies, but some occur on the bare hill-top, and one has been observed in a footpath. The herring-gulls occupy more prominent and exposed situations than those selected by the lesser black-backs; while on the extreme rocky summits are a few nests of the greater black-backed species. Thrift is used in the construction of the nest.

Greater white-winged Gull (*Larus hyperboreus*).

This species is generally referred to in ornithological works as the glaucous gull, from a translation of its alternative scientific title, *Larus glaucus*. Such a title is, however, neither descriptive nor good popular English, and a better name is that of greater white-winged gull, since the white head and tail and white



MOUNTED IN THE ROWLAND WARD STUDIOS

GREATER WHITE-WINGED GULL.

quill-feathers, together with its large bodily size and the absence of black on the back, form the most distinctive characteristic of this fine species. The white-winged gull is a circumpolar species, breeding in the Arctic zones of both hemispheres, wandering southwards

in winter as far as the Mediterranean, Black, and Caspian Seas in the Old World, and to Florida and California in the New World. It is during the winter migration alone that the species is seen in the British Islands, where it is largely represented by immature birds, which are more common in Scotland than on the southern coasts of England. To Ireland it is described as an uncertain winter-visitor, occurring only occasionally, and then in very small numbers; but in very cold winters it sometimes makes its appearance, as in Scotland, in flocks.

Owing apparently to its predaceous habits, this gull is known locally on the Continent as the "burgomaster." It feeds alike on young birds, fish, crabs, etc., and garbage of all kinds. Although in Norway it breeds on precipitous cliffs, at the Petchora embouchure, north-eastern Russia, it has been found nesting on low sandy islands but little above high-water mark. In the latter locality, as well as on Kolguev Island, near the mouth of the White Sea, the nests have been described as little more than heaps of sand—often accumulated round drift-timber, mingled with masses of seaweed and zoophytes, the piles being sometimes as much as a couple of feet in height. In slight depressions in the summits of these mounds are laid the three eggs, which measure about 3 inches in length, and in colouring are very like those of the lesser black-back, although in some instances more sparsely marked.

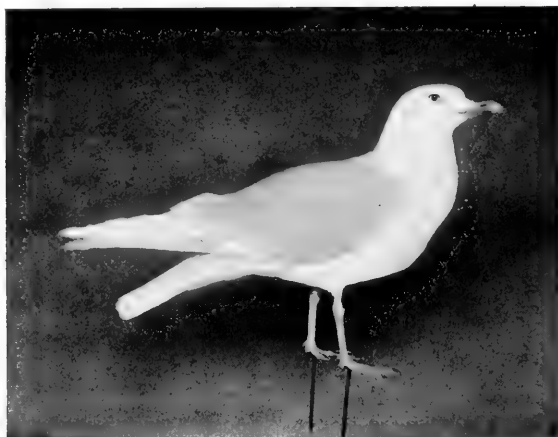
The white-winged gull may be distinguished from the herring-gull by the very pale grey colour of the back and wings, and the white primaries; it closely resembles the following species, but differs in its much larger size, as it measures 30 inches in length. The legs are bright pink, the ring round the eyelid is vermilion, the eye yellow, and the beak yellow, with an orange patch at the angle of the lower jaw. In winter the head and neck are streaked with ash-grey. Young birds have the beak pale brown at the base and dark horn at the top; the head, neck, back, and wing-coverts mottled with pale ash-brown and white, the scapulars barred with pale brown and tipped with greyish white, the quills pale yellowish grey, the tail yellowish brown, and the underparts dull white mottled with pale brown. In the next year the mottlings become paler, fading before the final autumnal moult at the end of the fourth year to creamy white. The chick resembles that of the herring-gull but is paler.

The greater white-winged is to a great extent a feeder on carrion, and when engaged on the body of some dead animal or of a fish cast up by the tide, exhibits great shyness, so that it can only be

approached with difficulty. In this respect it differs markedly from the Iceland gull, which under such circumstances displays symptoms of alarm. The white-winged species when on the wing can be readily distinguished from the Iceland gull by its larger size and more laboured flight, which approximates in character to that of the great black-backed gull. When at rest the tips of the primary quills extend to the extremity of the tail or but slightly beyond, whereas in the Iceland gull the former project two inches or more beyond the latter.

Iceland Gull
(*Larus leuco-*
pterus).

The Iceland or lesser white-winged gull is a still more Arctic species than the last (from which it may be distinguished by its inferior size and relatively larger wings), found on both sides of the northern Atlantic, and visiting the British Isles, more especially



ICELAND GULL.

their northern districts, in winter in larger or smaller numbers according to the nature of the season. Its breeding-haunts include Cambridge Bay and probably other parts of Arctic America, Greenland, and Jan Mayen Island. In most ornithological works it is stated to visit Iceland only in winter, and this is probably true as a rule, but the British Museum possesses a couple of eggs from that island. Its usual winter-haunts include Iceland, the Färoes, Scandinavia, the shores of the Baltic, and thus down the western coasts of Europe as far south, in exceptionally severe winters, as the southern side of the Bay of Biscay. To Scotland and the Isles it is, as already

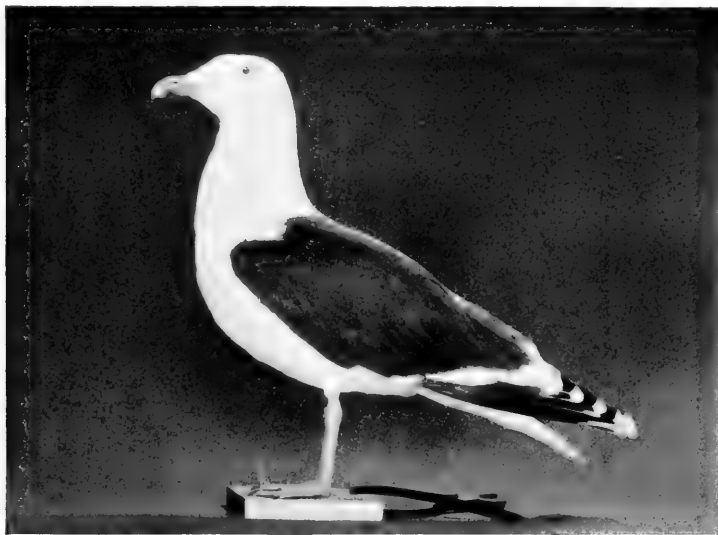
mentioned, a much less uncommon visitor than it is to the southern coasts of England; and its visits to Ireland are only occasional, and then in very small numbers. It is noteworthy that although most of the records are in winter, specimens of these gulls have been taken in Ireland in every month of the year except July. On the American side of the Atlantic the winter-range extends to the latitude of Boston. In the North Pacific the group is represented by *Larus glaucescens*, allied to *L. hyperboreus*, and two smaller species or races.

As already mentioned, this species differs from the greater white-winged gull chiefly in point of size, males not exceeding 22 inches in length, with a wing which from base to tip does not measure more than $16\frac{1}{2}$ inches, a length exceeded in the smallest individuals of the last-named bird. The legs and the rim of the eyelid are flesh-coloured, and the beak is yellow with a red patch at the angle of the lower jaw. The young resemble those of the greater white-winged gull but are somewhat darker; and similar stages are passed through during the assumption of the adult plumage, which is completed by the end of the fourth year.

In Scotland these gulls are exceedingly wary and shy; they commence their winter-visit to Iceland about the middle of September, and depart northwards in the latter part of April or May. In habits the species appears to be more energetic and active than the greater white-winged gull. The eggs, which are laid at the commencement of June on the bare sand in slight hollows or on cliff-ledges, vary in ground-colour from greenish grey to pale buff, and are generally evenly blotched and spotted with chocolate and blackish brown; the underlying markings being pale purple. From $2\frac{1}{2}$ to $2\frac{3}{4}$ inches forms the limit of variation in length.

Great Black-Backed Gull (*Larus marinus*). As the white-winged group of gulls is represented in the British Isles by a larger and a smaller species, so there are two representatives differing to much the same extent in point of size of the group characterised by the black back of the adult. There is this important difference between the two groups, namely, that while, as we have seen, both the white-winged species nest only in the far north, the two representatives of the black-backs breed within the area under consideration. Doubtless, this difference has some connection with the marked difference in the colouring of the two groups, that of the two white-winged kinds being obviously an adaptation to Arctic conditions. Like the greater white-winged species, the great black-back is a native of both coasts of

the Atlantic; its breeding-range in the western hemisphere extending from Greenland and Labrador and the Great Lakes to Baffin Bay, and in the opposite hemisphere from Iceland in the west to the Petchora valley in the east, and southwards to about the 50th degree of north latitude. In winter the species ranges on the one side as far south as Florida, and rarely the Bermudas; and on the other to the Canaries and the coasts of the Mediterranean, as far east, although rarely, as Egypt, while it also visits inland waters. Although only a few isolated nesting-sites are known on the southern and western coasts of



MOUNTED IN THE ROWLAND WARD STUDIOS

GREAT BLACK-BACKED GULL.

England, as we pass north the great black-back is found breeding abundantly in the British Islands, more especially in Scotland. In Ireland it breeds in small numbers all round the coasts, but is more common on the west side than elsewhere.

An interesting question has been raised as to which species of black-back nests on the grassy slopes crowning the Bass Rock. The ornithologists who visited the Bass Rock in the first half of the last century appear to have referred all the members of the small colony of those gulls which annually breed there to great black-backs, but all those which have been observed of late years have proved to be lesser black-backs. The breeding of the latter species on the Bass was, in fact, proved some forty years ago. The question thus raised is

whether the older naturalists were wrong in their identification, or whether the species forming the colony has changed. Apparently the great black-back has at present no known breeding-station on the east coast of Scotland south of the Moray Firth. There is, however, an egg of the larger species in the collection of the British Museum stated to have been obtained from the locality in question ; but it has been suggested¹ that the specimen never came from the Bass. Three eggs collected so long ago as 1846, and reputed to be from the Firth of Forth, are undoubtedly great black-backs' eggs, and at the date they were obtained no dealer could have any object in giving them an incorrect locality. On the other hand, a pair of lesser black-backed gulls and their eggs were taken on the Bass Rock in 1867 ; and at the time they were taken, the collector, in referring to the alleged occurrence of the great black-back on the Bass, stated that he had never noticed this species nesting there, and that all the gulls of this group he had observed were of the smaller kind. When a well-known ornithologist visited the Bass Rock in May 1863, the gulls on the Rock were the lesser black-backed species, this being decided from the colour of the legs, which in this species are yellow, in the great black-backed gull flesh-colour.

Attaining, like the greater white-winged gull, a length of some 30 inches, the present species may be distinguished from the former by the black or dark slate-colour of the back and wings. The scapular and secondaries are tipped with white, like the primaries ; and, as in the herring-gull, there is a long wedge of grey running down the inner webs of the primaries, the rest of the plumage being white ; while the rim round the eye is red, the beak yellow with a red patch on the angle of the lower jaw, the eye yellow, and the legs and feet flesh-colour. Young birds resemble immature herring-gulls, but have the markings more sharply defined. The adult plumage is probably not attained until the fifth year. The chick is ash grey above, mottled with blackish brown, but the nestlings show traces of an earlier striped phase ; the breast is tinged with buff, and the abdomen white.

A large bird of powerful flight, with a peculiar loud croaking or laughing cry of its own, the great black-back is a perfect terror to all creatures weaker than itself, pecking out the eyes of injured or strayed lambs with its cruel beak, and destroying ducklings and disabled water-fowl, and consuming every egg it can find. On this account it is cordially detested by game-preservers as well as by the owners of "eider-duckeries" in Iceland and elsewhere. As an instance of its

¹ See W. Evans, *Proc. Roy. Phys. Soc. Edinburgh*, vol. xvi. p. 2 (1905).

voracity, reference may be made to the well-known story—whether true or false—of the stomach of one of these birds having been found to contain part of a fish, to which were attached a couple of hooks, over 30 feet of line, and a 7-lb. stone! Carrion and garbage of all kinds are also greedily devoured by this black-cloaked robber. As a rule, great black-backs in Scotland and the Isles are found either solitary or in pairs occupying exposed positions on the coasts or the summits of islets in inland lakes. There are, however, islands where fifty or more pairs have been seen nesting in company, sometimes in association with their smaller cousins and herring-gulls. The breeding-places appear to be generally chosen at some little distance from the coast, but may be either on the mainland or on islands of larger or smaller size. The nest is a loosely made structure of considerable size and depth, placed in a hollow of the ground, and, according to one account, formed of dry grass, wool, and heather, but, according to a second, lined with grass, seaweed, and a few twigs. The eggs, which are laid early in May and are generally three in number, vary from about $2\frac{3}{4}$ to $3\frac{1}{4}$ inches in length, and range from pale creamy buff to light stone with a tinge of olive, upon which are small spots of yellowish or blackish brown with underlying purple markings. Usually the markings are evenly distributed, but they may tend to form a cap at the large end, and occasionally they are larger than ordinary. A uniformly blue egg is known, and there is a second with a blue ground and a few brown markings.

**Lesser Black-
Backed Gull**
(*Larus fuscus*).

Practically a miniature of its larger cousin, the lesser black-backed gull is distinguished by its inferior size and certain features in regard to the colouring of the primary quills and the legs of the adult referred to below. Unlike the great black-back, this species is, however, confined to the eastern side of the Atlantic (being unknown even in Iceland), where its breeding-range extends eastwards from the Färoes and Scandinavia to the Dwina Valley, and southwards to the Mediterranean. Apparently it does not nest on the coasts of the Arctic Ocean; and in winter its southern range includes the Canaries, a large part of northern Africa, the Red Sea (where it is reported to be resident), and the eastern end of the Persian Gulf. It nests locally in the British Islands from Cornwall and Lundy Island northwards to the Shetlands, but is most numerous in the northern parts of this area. Wherever it nests, it does so in large numbers, sometimes indeed in almost incredible hosts; Lundy Island, the Farne Islands, and the Färoes being very favourite

stations. Its breeding on the Bass Rock is referred to under the head of the preceding species. Smooth grassy slopes, like those on the Bass Rock and the Farne Islands, crowning cliffs, rather than ledges on the cliffs themselves, form the nesting-sites favoured by the lesser black-back; while herring-gulls and kittiwakes build near by on the scarped rocks. These gulls are always social, and may be seen at times inland following in the wake of the plough. Their cries are very similar to those of the herring-gull; and fish forms the staple food of this species, which will, however, often resort to the neighbourhood of ships for the offal thrown overboard. The nest is an ill-built



MOUNTED IN THE ROALAND WARD STUDIOS

LESSER BLACK-BACKED GULL.

structure of dry grass, seaweed, etc., and at the proper season may contain either three or four eggs, the latter being rather an unusual number in this group of birds. It is related that a nest in the Natural History Branch of the British Museum, containing four eggs, was made in a sheep-track, and that, in passing to and fro, the sheep were considerate enough to jump over the back of the sitting bird. As regards the eggs themselves, it will suffice to mention that they measure less than 3 inches in length, but are otherwise very similar to those of the great black-back, although rather darker coloured.

Although in length this species does not exceed 22 inches, in colouring it closely resembles the great black-back, from which it differs mainly in the paler back and wings, as well as by the bright yellow of the legs and feet. In winter the head and neck are streaked

with grey. Young birds resemble herring-gulls of the same age, but are darker above, with black primaries, horn-coloured beaks, brown eyes, and dark brown legs. The chick in down cannot be distinguished from the herring-gull at the same period of its existence.

Black-headed Gull
(*Larus ridibundus*).

With the black-headed gull we come to a group of species characterised by the brown or black head of the adult in summer-dress, the group being represented in Great Britain only by this and a second indigenous species, although stragglers of others have been recorded. The black-headed, or, as it is often more appropriately called, the



MOUNTED IN THE ROWLAND WARD STUDIOS

BLACK-HEADED GULL (SUMMER).

laughing gull (since the head is usually chocolate-coloured), is a species breeding in temperate rather than Arctic climates, its breeding-range extending from the Färoes in the west across southern Scandinavia and Russia southwards of Archangel to the Mediterranean in the south, and thence eastwards across temperate Asia to Kamchatka. In winter these gulls visit Africa, the Red Sea, the Persian Gulf, Upper India, and so on to the Philippines. It is one of the commonest of the British gulls, and nests in suitable localities throughout the British Islands, inclusive of the Shetlands. Marshy localities, frequently a considerable distance from the sea, form its breeding-haunts, and in these it nests in large colonies which may include thousands of individuals. The inland British "gulleries," now much less numerous than formerly, such as those of Scoulton in Norfolk, Poole in Dorsetshire,

and Thorne Waste in Yorkshire, are tenanted by this species ; and there are similar colonies in Scotland, as well as in bogs or on islands in lakes in many parts of Ireland.

Measuring 16 inches in length, and having, like the next species, a distinct summer and winter plumage, this gull may at all times be distinguished by the absence of white tips to the primaries, and the presence of white streaks on the inner webs of these feathers, which are for the most part black. A sooty brown head, and a crescentic line of white over the eye form the distinctive marks of the summer-dress ; the back and wing-coverts being French grey, and the rest of the plumage white, tinged on the breast with rose-pink. In winter the sooty colour of the head disappears, but a dusky patch remains before and behind the eye. The beak and legs are lake-red, and the eye is hazel. Young birds are brown above, generally with some of the grey feathers of the adult intermixed, and have a black bar across the end of the tail, retained till after the rest of the adult dress is assumed, while the under surface of the wing is greyish white, instead of mottled with brown as in the common gull, the beak dull yellow, and the legs reddish yellow. The full adult dress is assumed at the end of the second year.

The enormous numbers in which these gulls congregate in their inland breeding-places may be inferred from the fact that less than half a century ago as many as 16,000 eggs have been collected in a single season at the Scoulton gullery ; in those days they were sold to be eaten in the same manner as plovers' eggs, or for culinary purposes, and this practice may be continued still, although a somewhat strong flavour diminishes their value as articles of diet. The sight of the gulls rising in their thousands from their breeding-haunts is stated to be exceedingly beautiful, and the noise of their wings coupled with the discordant cries of the birds, almost deafening. And the gulls are thorough masters of the situation, driving away any poaching heron, or even the lordly swan himself, from the vicinity of their nurseries. At Scoulton the birds begin to assemble in the latter half of February, and early in March are nearly all present ; the middle of April, if the season be mild, sees the beginning of the laying, but as often as not this does not take place till May. Although when on the coast in winter these birds probably subsist on the usual gull-diet, when on their breeding-grounds they feed largely on worms and snails, and are thus of use to the agriculturist, but they will apparently also eat grain. Here it may be noticed that on Beginish Island, in the Blasquet group, a few black-headed gulls have forsaken their usual habit, and taken to

nesting close to the sea. Although nests have been observed in low trees, they are placed as a rule on the ground near water, and have in some localities been found actually floating on the water itself, being in such instances structures of great bulk. The nests may contain two, three, or four eggs each; but three appears to be the normal number, and when there are four they are probably the product of two birds. The eggs themselves, which range in length from just short of 2 inches to nearly $2\frac{1}{2}$, vary much in colour, occasionally even in the same clutch. Thus while the ground-colour may be greenish grey, olive-buff, or olive-brown, the markings of various shades of brown and blackish are singularly inconstant in form and size, although the underlying markings are always pale violet. Uniformly blue eggs are not unknown; and there is a considerable amount of variability in regard to the shape of the eggs. The name of laughing gull, it may be added, is derived from the hoarse, cackling cry of the species, which when rapidly repeated has been likened to a rude laugh.

Of the North American Bonaparte's gull (*Larus philadelphia*, or *L. bonapartei*), another small dark-headed species distinguished by its black beak and leaden-black head, nine examples were recorded from the British Islands up to the end of the nineteenth century. Of these three were taken in Ireland and three in Cornwall, while one came from Scotland.

Of another allied species, the Mediterranean black-headed gull (*Larus melanocephalus*), distinguished by the coal-black head and coral-red beak of the adult, two examples were taken at Falmouth in 1851, a third was killed on the Thames in 1866, and a fourth near Yarmouth, Norfolk, in 1887.

This, however, does not complete the list of species of black-headed



MOUNTED IN THE ROWLAND WARD STUDIOS

BLACK-HEADED GULL (WINTER).

gulls of which stragglers have wandered to Great Britain, as a specimen of the great black-headed gull (*Larus ichthyæctus*) was shot at Exmouth in 1859. This species, which breeds on the lower part of the Volga and round the great lakes of Central Asia, differs from all the above by its superior size, measuring 26 inches in length.

Little Gull
(*Larus minutus*).

The little gull, or, as it might well be called, the lesser black-headed gull, is the second indigenous British representative of the black-headed group, and the last species included in the typical genus *Larus*, of which it is the smallest known member. By its diminutive size and the deep



MOUNTED IN THE ROWLAND WARD STUDIOS

LITTLE GULL (WINTER).

black head of the adult in summer it is readily distinguished from the laughing gull. The little gull is an eastern species, ranging from the lakes and marshes of Amurland and the Sea of Okhotsk westward across temperate Asia and the greater part of Europe to visit the British Islands in variable numbers, mostly during autumn and winter, and in the latter season journeying as far south as the Mediterranean.

Naturally, with such a distribution, the bulk of the wanderers to the British Islands arrive in the southern and eastern counties of England: in Ireland the species is very rare, while in the north of Scotland it seems to be unknown, although it has been recorded from the Färoes. Both in summer and winter these pretty little gulls associate in large colonies; they feed partly on fishes and partly on crustaceans and worms, but are also said to hawk dragon-flies on the marshes after the manner of nightjars. Very generally they build in company with the common tern, from the eggs of which their own appear to be indistinguishable; both sexes taking their turn at incubating. The nest is built of marsh-plants, and is often almost floating; and there are usually three eggs, although occasionally four.

In addition to being the smallest of its tribe, not exceeding 11 inches in length, this species is readily recognised, when adult, by the

absence of black markings on the primary quills and the black of the under surface of the wing. In summer the head and upper part of the neck are deep black, the back and wing-coverts pearl-grey, the primaries grey broadly tipped with white, and the rest of the plumage white, tinged on the under-parts with pink. In winter the head is white streaked with ash on the nape and ear-coverts. At all seasons the beak is deep lake-red, and the legs and feet are vermillion. Young birds are mottled with dark brown above, with a band of the same colour across the end of the tail; but the primary quills are sooty, with a white margin on the free edge of the inner web, the under surface of the wing is white, the beak is black, and the legs are yellowish red. The chick is warm buff in colour, streaked and spotted with dark brown.

Sabine's Gull
(*Xema sabinei*).

Although manifestly only a wanderer from the Arctic regions, where it is found all round the Pole, the gull named after Sir Edward Sabine (by whom it was discovered during Sir J. Ross's voyage to Baffin Bay in the first quarter of the last century) so frequently reaches the British Islands that it is difficult to refuse it a definite place among their fauna. In fact, during the nineteenth century no less than fifty examples of the species were recorded from our area, although nearly all were immature birds. The localities where they were obtained are dotted over the whole kingdom, although most of them are in the neighbourhood of the coast, and the majority in England. Autumn and winter, namely, from August to December, are the seasons in which these birds most commonly make their appearance on our coasts. A specimen was taken in Hampshire in 1904.



SABINE'S GULL (SUMMER).

From the typical gulls, Sabine's gull and an allied species inhabiting the Galapagos Islands off the western coast of South America, are

broadly distinguished by the distinctly forked tail ; while the wing is relatively long and the hind-toe very small. Greenland and Alaska are well-known nesting-haunts of the present species, where its food consists largely of such insect-larvæ and crustaceans as are to be met with in the brackish water-pools of the marshes, supplemented by sticklebacks. Towards the end of August these small gulls forsake the marshes for the coasts, where they may be seen feeding between tide-marks.

In summer the head and neck are lead-grey in colour, deepening on the neck into black, so as to form a collar ; the back and wing-coverts are light slate-grey ; the quills black broadly tipped with white ; the greater wing-coverts and secondaries also white-tipped ; the rest of the plumage white ; the beak black tipped with yellow, the rims of the eyelids vermilion, the eyes brown, and the legs black. The difference between the summer and winter plumage consists in the loss of the black on the head and neck, where, however, dark streaks persist on the nape, coalescing to form a greyish-black area. Young birds are ash-grey above barred with brown and white, and have a patch of brown on each side of the breast, and a black bar across the tip of the tail. Thirteen inches is the length of the adult.

Only two eggs are laid, these being dark olive-brown in colour with somewhat indistinct reddish-brown spots, and still more obscure underlying markings of grey. The nest, of which several are often found in proximity, is little more than a slight depression in the ground.

An even more exclusively Arctic species is Ross's gull (*Rhodostethia rosea*), also known as the rosy gull, from the colour of the under-parts, and as the wedge-tailed gull, from the shape of the tail-feathers. A single example, now in the Leeds Museum, is stated to have been taken in Yorkshire in 1846 or 1847 ; but, in view of the non-migratory habits of the species, the record seems very doubtful. This gull nests in the Kolyma Delta, north-east Siberia.

Ivory-Gull
(*Pagophila*
eburnea).

The claims of the ivory-gull, which is another circumpolar Arctic species and the only representative of its genus, to a place in the list of British birds, are about on a par with those of Sabine's gull, something over forty examples having been recorded from the British Isles during the past century. More than a dozen of these records are from Scotland and the Isles, but specimens have been taken in Cornwall and Sussex, and Ireland claims eight. The ivory-gull is a small

species, characterised by its squared tail, the connection of the hind-toe with the innermost of the three front ones by means of a notched web, the large and curved claws, the extension of the feathering of the legs nearly down to the joint between the shank and the second segment, and the pure white plumage of the adult. Even young birds are mainly white, though with a considerable amount of grey on the sides of the head and throat; and as the chick is also described as mainly white, it is evident that this gull has been specially modified in colouring for a life spent among the Polar ice. When in the air, the bird is described as more resembling a tern than a gull. The nest is made



MOUNTED IN THE ROWLAND WARD STUDIOS

IVORY-GULL (MALE).

of green moss, or of fragments of driftwood, seaweed, etc., and placed on a cliff at a considerable height above the sea; and the one or two eggs are remarkable for their pale tint, being either light stone-colour or buff, marked with blotches of brown, and underlying purple patches.

The pure white colour from which the ivory-gull takes its name is really amply sufficient to distinguish the species; it may be added, however, that the beak is greyish green tipped with yellow, the margin of the eyelid brick-red, the coloured part of the eye brown, and the leg black. Young birds differ by the presence of black spots on the back, black tips to the primary quills, and a black band across the end of the tail. On the other hand, the chick is wholly white, like the adult. Full-grown birds measure 18 inches.

Kittiwake
(*Rissa*
tridactyla).

As indicated by its scientific name, the gull commonly known as the kittiwake, which is an indigenous British species, and our last representative of the gulls, is sharply distinguished from all its kindred by the absence of the hind-toe. Occasionally, however, that digit is represented by a small rudiment; and as this rudiment is said to be more commonly seen in kittiwakes from the North Pacific, such birds have been regarded as indicating a separate species, but this view is now generally rejected. On the other hand, a kittiwake with vermillion feet and grey under wing-coverts, inhabiting Bering Sea and its neighbourhood, is undoubtedly entitled to specific



KITTIWAKE.

separation, and is known as *Rissa brevirostris*. In addition to the lack of the hind-toe, these species present two other characteristics in common, namely, the shortness of the shank or lower segment of the leg, which is inferior in length to the middle-toe and its claw, and the tendency towards forking in the tail. In some ornithological works, it should be mentioned, the kittiwake is styled *Rissa rissa*, instead of by the title here given.

The kittiwake, which is a circumpolar species, presents a remarkable difference as regards its distribution from species like Ross's and the ivory gull, whose breeding-range is confined to the frozen north. The kittiwake, on the other hand, although it has been met with beyond Spitzbergen so far as man has penetrated, while in Smith Sound it is known to range some distance beyond the 81st degree of

latitude, yet breeds as far to the south as the north-western coast of France, the Gulf of St. Lawrence, and the Kurile Islands, and in winter ranges in Europe to the Caspian, the Mediterranean, and the Canaries, and on the opposite side of the world to about 35° north latitude. Throughout the British Islands the kittiwake is a familiar and resident bird on the coast, although for breeding-purposes it resorts to rocky islands or precipitous cliffs, on the almost inaccessible ledges of which the female lays her two or three eggs, cradled in a nest of somewhat more elaborate construction than is usual among the gull-family. Favourite nesting-haunts of the kittiwake are Lundy Island, Bempton Cliffs and Flamborough Head in Yorkshire, the Farne Islands off the Northumberland coast, and still farther north the celebrated Bass Rock, and numerous localities in the Shetlands and the Orkneys; while there are likewise many well-known colonies of these birds along the Irish coast, some on the mainland itself, and others on the adjacent islets. In many of these places the birds are to be seen in thousands during the breeding-season; but these large assemblies appear to be exceeded in Lapland and other northern lands, where the colonies are of almost incredible extent.

Thirty years or so ago, when bird-protection was either non-existent or much less rigorous than at the present day, and when gulls' wings were in vogue for ladies' hats, a terrible slaughter, accompanied by much unnecessary cruelty, of kittiwakes used to take place on Lundy Island during the first fortnight of August; the skins being taken to Clovelly on the mainland, where they were prepared for market. It has been computed that in some seasons not much fewer than ten thousand birds, inclusive of starved nestlings, were killed in one way or another during this brief period. Happily, such doings are now things of the past.

In addition to various kinds of surface-swimming marine invertebrates, kittiwakes feed very largely on the fry of fishes; and the great increase which has taken place in the numbers of these birds, as the result of protection, cannot therefore be regarded with an altogether favourable eye by the professional fisherman. By the middle of August the breeding-season is over in the more northern haunts of these birds, which then desert the cliffs to seek a more genial climate farther south. The nest is frequently built on a foundation of turf, kneaded into a dough-like mass by the feet of the birds, and upon this is a superstructure of seaweed, lined with dry grass, and perhaps a small quantity of feathers. The eggs, which are occasionally four in number, although generally, as already stated, two or three, vary in

length between something over 2 and a little less than $2\frac{1}{2}$ inches. They are less glossy than those of the more typical gulls, and remarkable for their extraordinary variability in colouring. Generally speaking, it may be said that the colouring ranges from clay-brown with dark brown spots and underlying spots of grey to bluish grey or creamy buff with the markings either exceedingly faint or conspicuous and prominent. Kittiwakes were formerly held in some estimation as articles of food by the poorer classes, and the present writer can recall in his undergraduate days gulls of this and other species being sold in Cambridge market after a heavy storm as pigeons!

The absence of the hind-toe is the distinctive feature of the kittiwake; but it may be added that the back and wing-coverts are slate-grey; the scapulars and secondaries tipped with white; the primaries black, with white tips to the fourth and fifth; and the rest of the plumage white. In winter the nape and neck are tinged with grey. Young birds resemble the adults in winter-dress, but have black lesser wing-coverts and a black band across the end of the tail; while the beak is black and the legs and feet are brown, in place of being, in the adult, respectively greenish yellow and black. The chick is dark grey above tinged with buff.

Black Tern
(*Hydrochelidon*
nigra).

Leaving the gulls with the kittiwake, we come to the first representative of the terns, or subfamily Sterninæ, in the form of the black tern, the sole indigenous British representative of a genus containing four species, of which two others are stragglers to Britain. From gulls terns are collectively distinguished by the upper and lower halves of the beak being approximately equal in length, with straight slender tips, instead of the former being longer than the latter, and generally bending down in front of it at the tip. The nostrils are slit-like; the tail is more or less distinctly forked, and in many cases extends beyond the closed wings, which are always long; and, as a rule, the legs and feet are short. Although some gulls make an approximation in the foregoing respects to terns, the latter are more lightly built birds than the former, with a different type of flight, from which, in conjunction with their long wings and forked tails, they derive their popular title of sea-swallows. They are, moreover, much less given to swimming than gulls; and when they alight, with the exception of the "noddies," they generally do so on land. Unlike many gulls, they subsist chiefly on living prey, and more especially fishes, upon which they swoop from above; but some of the species feed mainly on

crustaceans and other swimming invertebrates, while others, again, prey chiefly upon insects. In the general colouring of their plumage most terns are very similar to gulls; many of them having black on the head. The black area is, however, smaller, but in many cases persists throughout the year, only becoming somewhat paler in winter. In certain species the black extends over the greater part of the plumage of the adult in summer.

The black tern and its relatives, as the name implies, are characterised by this general darkening of the breeding-plumage of the adult; but more especially by the relative shortness of the tail, which is scarcely forked and much inferior in length to the wings, and also by the deep notching of the webs connecting the front toes.

The black tern, which formerly nested in the fen-districts of England, ranges over the greater part of Europe to the southward of latitude 30° , extending as far eastwards as Turkestan, while in winter it travels to Africa, where it is found a long distance down both



MOUNTED IN THE ROWLAND WARD STUDIOS

BLACK TERN (SUMMER).

the west and the east coast. In the western hemisphere it is replaced by the American black tern (*H. surinamensis*), which is a darker bird with black feet; from the other two representatives of the genus, of which, as noticed below, stragglers occasionally reach our islands, it is readily distinguished by the grey colour of the under wing-coverts of the adult in summer-plumage. In addition to this special feature, the black tern in summer-dress may be recognised at a glance by the dull lead-grey tone of the plumage, relieved only by the white of the lower flank-feathers and under tail-coverts, and the pale grey under wing-coverts; the beak being black and the legs purplish brown. In winter the forehead, face, neck, and underparts are white, as in the white-winged whiskered species at the same season. In length the black tern does not exceed about $9\frac{1}{2}$ inches. Immature birds resemble the adults in winter, but have the feathers of

the upper-parts mottled with brown. In the chick the general ground-colour is buffish with a black stripe down each side of the body, a black line above the eye, and black mottlings on the back and head.

Romney Marsh in Kent, Crowland Wash and other parts of the fen-district of Lincolnshire, and the Broads and other swampy districts of Norfolk, were the favourite British breeding-haunts of the blue dove, as the species was locally called. In the first half of the last century the nests of this handsome bird might have been found by hundreds in some of the districts mentioned, and more especially amid the alder swamps of Norfolk; but after the year 1853, by which time it had already become scarce, it had practically ceased to breed in the last-named county, although a nest is recorded from there so late as the year 1858. Nowadays, it is seen in the British Islands only as a spring and autumn visitor, mainly represented by immature birds passing up and down the coasts, although a few adults in full summer-dress may occasionally be seen on the Berkshire reaches of the Thames. The young birds from the north usually begin their southward passage in August and may be seen till October on our coasts, where they make their reappearance on their northward flight in April. The marshes of Scandinavia, Russia, Hungary, Holland, etc., are now some of the chief breeding-places of these terns; and in such situations the birds may be seen rising in hundreds during the height of the nesting-season at the end of May. Small fishes, leeches, worms, freshwater-shrimps, and insects constitute the chief diet of this tern. In a substantial nest of water-weeds and other herbage, which may be built either on patches of firm ground in the marsh, or merely supported on the floating rubbish in the water itself, the female tern lays three eggs. As a rule, these vary in ground-colour from clay-brown to greenish grey, stone, or buff, upon which are black blotches, with a marked tendency to coalesce, and indistinct underlying spots of grey. More rarely, however, the surface markings take the form of scribbly lines or dots; and in other cases the colour of the blotches may be chestnut or chocolate. The length is from just over $1\frac{1}{4}$ inches to just short of $1\frac{1}{2}$ inches.

Ten records in a century (that is to say, from 1836 to 1894), of which one is referable to Ireland and one to Scotland, scarcely entitle the white-whiskered tern (*Hydrochelidon hybrida*) to a definite place among British birds. The species is a native of southern Europe, whence it extends eastwards across temperate Asia to China, and southwards to Africa and India (where it breeds), and thence across the Malay Peninsula and Archipelago to Australia. It is a small species, measuring 11 inches in length, specially distinguished by the

grey upper tail-coverts and white under wing-coverts and face. In habits it appears to be identical with the black tern.

White-winged Tern
(*Hydrochelidon*
leucoptera).

Although the strikingly coloured species known as the white-winged black tern, or, more concisely, the white-winged tern, is no more entitled to rank as a native indigenous member of the British fauna than is the whiskered tern, its record of twenty-seven authenticated occurrences during the nineteenth century within our area renders it difficult



MOUNTED IN THE ROWLAND WARD STUDIOS

WHITE-WINGED TERN (SUMMER).

to be passed over without being accorded a definite place and notice. This tern in summer ranges over temperate Europe and Asia south of about latitude 55° , and in winter wanders to Africa, India and Ceylon (rarely), Burma, and Australia.

In summer it is rendered easily distinguishable, the general hue of the plumage being black both above and below, against which the white tail and wings stand out in strong contrast. The lesser wing-coverts are white passing into pearl-grey towards the quill-feathers, which are of the same tint, but deepening into lead-colour on the secondaries; the beak is livid red, and the legs are orange. The difference between the summer and winter plumages is more marked than in most terns, in winter the under-parts, head, and neck turning white and the back pale grey. Young birds in first plumage are like the adults in

winter, but have the upper-parts mottled with brown. The white tail and upper tail-coverts serve to distinguish the adults at all seasons, but in young birds only a few of the upper tail-coverts are white.

In its habits, both during the breeding-season and at other times of year, this species appears to be practically identical with the black tern, and as it is a mere straggler on migration to the British Isles, no special notice on this point is required. Of the above-mentioned twenty-seven recorded occurrences in our area, three are from Ireland, and the remainder from England, among which latter Norfolk claims no less than thirteen. The total length of the bird is but $9\frac{1}{2}$ inches.

Caspian Tern
(*Hydroprogne*
caspia).

In marked contrast to the preceding in point of size is the Caspian tern, which is in fact the largest representative of the whole group, measuring no less than 20 inches in length. By some writers it is included in the typical genus, under the name of *Sterna caspia*, but its stout and long beak and legs and very short tail, only about



MOUNTED IN THE HOWLAND WARD STUDIOS

CASPIAN TERN (SUMMER).

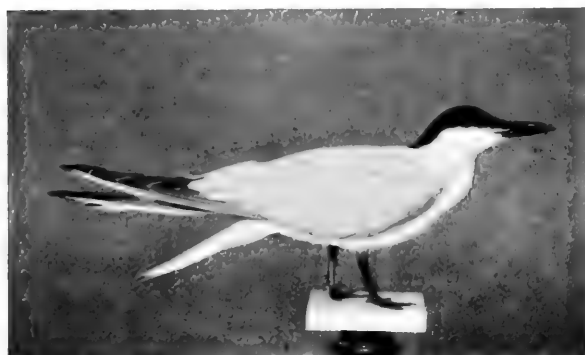
one-third the length of the wing, amply justify its transference to a separate genus, of which it is the sole representative.

Although stated to be particularly common in Sind, the Caspian

tern, despite its wide geographical range, which includes North America south of the Arctic Circle, Europe up to latitude 60°, Africa, temperate and tropical Asia, Australia, and New Zealand, is by no means an abundant species; and only just over twenty examples were recorded in the British Islands during the last century. Of these latter, as might have been expected, the great majority occurred on the eastern and southern coasts of England; not one being recorded from either Ireland or Scotland. The species, either singly or in pairs, frequents alike the sea-coast or inland pieces of water, both salt and fresh, where it may be easily recognised, when in search of prey, by its habit of flying with the beak held downwards, as well as by its loud and harsh cry. Fish and shrimps constitute its staple food. Well-known breeding-places exist in the Caspian and Black Seas, on the coasts of the Persian Gulf, and in Ceylon; the one or two eggs, which have a greyish-white ground-colour, being deposited in hollows in the sand. In addition to its large size and blood-red beak, which form its most distinctive characteristics, the Caspian tern in its summer-dress may be recognised by the black head and neck, with green reflections, and the delicate pearl-grey tints of the rest of the upper-parts. In winter, on the other hand, the crown of the head and neck change to white with black streaks. In immature birds the fore part and crown of the head, together with the under-parts of the body, are pure white, the back and neighbouring region is mottled with ashy brown, and the beak and legs are dull brown in place of the coral-red and deep black by which they are respectively characterised in the adult.

Gull-billed Tern The scientific name of the gull-billed tern is unfortunately calculated to lead to the conclusion that (Sterna anglica). it is an indigenous British species, whereas it is in reality only an occasional straggler to our islands, where something just over a score represents the whole reported tale of its occurrences during the nineteenth century. It was from one of these stragglers, killed in Sussex about 1813, that the species was recognised as distinct, and accordingly named *anglica*. By some writers the gull-billed tern is regarded as the representative of a distinct genus, under the name of *Geochelidon anglica*, on account of being in some degree intermediate between the black tern and its kindred (collectively known as the marsh-terns) on the one hand, and the typical or sea-terns on the other. The webbing of the toes is, for example, somewhat less full than in the latter, and the tail relatively short, with its

lateral feathers slightly rounded, although more pointed than in the marsh-terns; while the beak is unusually stout and blunt, and the shank, or lower segment, of the leg relatively longer than in ordinary terns, exceeding in fact in this respect the middle toe and its claw. Still, looking at matters in a broad manner, and not weighing details in too fine a balance, it seems inadvisable to attach any special importance to such insignificant differences, and the species is accordingly included in the typical genus, of which the distinctive peculiarities are recorded under the heading of the common tern. The summer-range of the pres-



MOUNTED IN THE ROWLAND WARD STUDIOS

GULL-BILLED TERN (MALE IN SUMMER).

ent species includes most of Europe south of about latitude 55° , the north of Africa, the Atlantic coast of temperate North America, temperate and tropical Asia inclusive of the Malay Archipelago, and Australia: to India and Ceylon, where it is common at that season on the borders of large tanks

and marshes, it is, however, chiefly a winter-visitor, and in Burma it is mainly restricted to estuaries and the coast. Its nearest breeding-places to the British Islands are in the south of Denmark, and the stragglers to Great Britain now consequently more often make their appearance in the eastern and south-eastern counties of England—Norfolk, as usual in similar cases, having the pre-eminence in this respect. Leeds appears to be the most northern locality for the species in Great Britain, at least up to the close of the nineteenth century; and there was no record up to that date of its occurrence in Ireland. Nothing specially noteworthy occurs in the habits of this tern, which feeds both upon insects and on fish and other water-dwelling creatures. The eggs are three in number, and of the usual tern-type, measuring about 2 inches in their longer diameter.

In addition to the characters noticed above, the gull-billed tern is characterised in the summer-dress by the black crown of the head and nape of the neck, the pearl-grey back, and the white under surface; the beak and legs being black at all seasons. In winter, streaks of

ashy grey on a white ground replace the black of the head and nape ; these streaks continuing, however, to form a patch around the ear. Immature birds have the plumage mottled and striped with brown and tinged with buff above, and the beak and legs horn-coloured.

Common Tern (*Sterna fluviatilis*). With the common tern, formerly known as *Sterna hirundo* (a name properly belonging apparently in part to an Arctic species), we come to the typical representative of the genus *Sterna*, and therefore of the entire sub-family. In common with the allied species (exclusive of the gull-billed



MOUNTED IN THE FOWLAND WARD STUDIOS

COMMON TERN (SUMMER).

tern, whose slight differences from the ordinary type have been already noted), this tern has the outer tail-feathers elongated and pointed, the tail deeply forked, with its outer feathers also elongated and generally more than half the length of the wing, the shank of the leg short and inferior in length to the middle toe and claw, and the beak generally slender (although heavy in the Indian river-tern, *Sterna seena*). Something like forty species are included in the genus, which has a cosmopolitan distribution. Unlike the marsh-terns, these birds are chiefly maritime in their haunts, and are in consequence collectively designated sea-terns.

The present species, in the adult condition, is specially characterised by the orange-red beak, coral-red legs, and the pale lavender-grey tint of the lower surface of the body ; the crown of the head and nape in

summer being of the normal black, while the upper-parts in general are dark pearly grey, becoming paler on the hind region of the back. In winter the forehead and crown are streaked with white and the under surface of the body assumes a paler tint. In their first plumage the young birds are mottled above with buff and show a dark band on the lesser wing-coverts, while the crown and nape are streaked with blackish brown. The buff down of the nestling is marked with black stripes on the back, and elsewhere with black spots above, although devoid of such markings below.

The range of the common tern is very extensive, including, in suitable localities, practically the whole of the temperate regions of the northern hemisphere in summer; and in winter comprising the greater part of Africa, together with India, Ceylon, and the Malay Peninsula, although the birds visiting the last three countries are comparatively few, and, at least in the south, for the most part immature. In Kashmir and other parts of Central Asia the species is, however, abundant. Throughout the greater part of the British Islands the common tern is the most numerous representative of its kind, although in the north of Scotland it tends to become scarce and to give place to its Arctic cousin, while in the more northern islands it appears to be practically, if not completely, unrepresented. Towards the north of its British range it seems to prefer estuaries or lakes to the sea-coast; and in Ireland is also found breeding on inland waters as well as on the islets around the coast.

As already mentioned, the common tern may be found alike on rivers, lakes, and the sea-coast, and is essentially a fish-eating species, which breeds in May or June according to locality. Sandy or shingly beaches are its favourite nesting-sites, the three eggs being frequently deposited only just above high-water mark. A well-known "ternery" exists near Wells, in Norfolk, situated on a low-lying tract of considerable size shut off from the open sea by a range of low sand-dunes. Here, according to a recent account,¹ both the common and the little tern breed in company, placing their nests in some parts quite close together. Very noticeable is the marvellous correspondence in colour of the eggs to their surroundings; those deposited among rufous-tinted shingle being described as showing a russet colour, while in those laid among blue-grey patches of pebbles the predominating tints were greyish. On the greener portion of the area, on the other hand, a more or less marked greenish tint was noticeable in the ground-colour of the eggs. If these observations are trustworthy, the variability in

¹ A. H. Patterson, *Zoologist*, ser. 4. vol ix. p. 258 (1905).

the colour of the eggs of the wading-birds, gulls, and terns has a sufficient explanation; although this explanation apparently implies the existence among the birds of the power of modifying the colour of their eggs to suit their surroundings; unless, indeed, some terns are always in the habit of laying on reddish and others on greyish ground, a supposition which scarcely seems credible. Although occasionally a few bents are added by way of lining, a mere hollow in the sand or shingle serves the purpose of a nest. The eggs measure between something over $1\frac{1}{2}$ inches and $1\frac{3}{4}$ inches in length. The markings are in the form of black dots and spots, sometimes coalescing into blotches, which may be aggregated at the larger end.

Arctic Tern The Arctic tern (sometimes known as *Sterna arctica*) (*Sterna macrura*). appears to be the true *Sterna hirundo* of the great Swedish naturalist Linnæus, the father of modern zoological nomenclature, and, if so, ought to be designated by that name, and likewise regarded as the type of the genus. It is very closely allied to the common species, which it entirely replaces in the Arctic regions, as it does, so far as nesting is concerned, in the Shetlands; while in the Orkneys, Hebrides, and on the east coast of Scotland it is the predominating species, but gradually gives way to the common tern in the more southerly parts of the kingdom.

Apparently its most southerly breeding-places in Great Britain are now the Farne Islands, off the Northumberland coast, where it nests abundantly, and the mouth of the Humber, where it does so more sparingly; but there are reports of its having formerly bred in Cornwall. In Ireland, where this tern is more numerous in summer than any other member of the group, it nests not only on the coasts, but also on the freshwater lakes of Connaught. That such an Arctic species should be merely a summer-visitor to Ireland, is certainly very curious, but such, according to the best authority, is stated to be the case. Skins collected during the Scottish Antarctic Expedition



MOUNTED IN THE ROWLAND WARD STUDIOS

ARCTIC TERN (MALE IN SUMMER).

immediately north of the great ice-barrier include those of the Arctic tern, which is thus demonstrated to have, so far as is at present known, the most extensive range in latitude of any known vertebrate. Nesting in the highest north, where its range extends to latitude 82° , this tern, when the duties connected with the breeding-season are over and the short northern summer shows signs of coming to a close, wings its way to the opposite pole, there to spend the southern summer feasting on the organisms which abound in the sea immediately north of the Antarctic ice-barrier, latitude $74^{\circ} 1'$ S. being the extreme range at present recorded in this direction. Towards the close of the summer these terns, which occur literally in thousands, are joined by flocks of petrels and sooty albatrosses which have bred in lower Antarctic latitudes, but are attracted by the same abundant food-supply at the base of the ice-barrier. There may also be a certain number of non-breeding petrels and albatrosses which pass the whole summer in company with the Arctic terns. That the latter does not breed in the southern ocean may be considered certain, nor is any other kind of tern known to inhabit the Antarctic continent. In Europe the breeding-range extends as far south as latitude 50° , and in North America to latitude 44° .

The blood-red beak, coral-red legs, and pearl-grey under-parts distinguish the Arctic from the common tern in summer-plumage ;



YOUNG ARCTIC TERNS.

and at all seasons the dark band along the inner side of the shafts of the primary quills is much narrower and more indistinct in the former than in the latter. There is, moreover, a greater difference between the summer and winter plumages than is the case in the common tern, since, in addition to the partial loss of the black cap by the intermingling of white feathers on the forehead and crown, the pearly grey under-parts

fade into white. Young birds in first plumage have the upper-parts mottled with buff, and a buff tinge on the neck and flanks, the nape above being blackish, and the forehead and crown white. The downy chick is hardly distinguishable from that of the common tern, although the throat is somewhat darker-coloured.

In general, as well as in nesting-habits, and likewise in the characters of its nest and eggs, the Arctic tern apparently presents no noteworthy differences from the common species, although it is said to display remarkable boldness in defending its nest against the raids of predatory gulls and skuas and other undesirable intruders on its domains.

Roseate Tern Legislation for the protection of wild birds is
(*Sterna dougalli*). credited with the rehabilitation of the roseate tern
as a breeding-species in Great Britain, notably on
the Farne Islands and the Welsh coast. In former years it bred not
only in these localities, but also in the Scilly Islands and on Foulney



ROSEATE TERN (SUMMER).

and Walney Islands on the west coast, and likewise in a few spots on the coast of Ireland.

Ruthless egg-collecting and other modes of persecution are stated, however, to have led to its complete extermination as a British breeding-species, till protection once more permitted it to re-establish itself in the above-mentioned localities. It is essentially a sea-tern, and its range includes the coasts of both sides of the temperate and portions of the tropical Atlantic, latitude 57° apparently marking its approximate northern limits. Although to some of its southern resorts it is only

a winter-visitor, it is known to breed in Ceylon, the Andamans, and the north of Australia, which apparently forms the boundary of its eastern range. To the Mediterranean it is only an occasional straggler.

One of the smallest of the white-breasted terns, this species, although very similar in colouring to the Arctic and common terns, is specially characterised in the adult state by the relatively long and slender beak, which is black with an orange patch at the base, the orange-red legs, and the completely white inner webs of the primary wing-quills. In summer-dress the feathers of the breast assume the beautiful rosy tint from which the species derives its name; and at the same season the crown of the head is black, and the back and wings are pearly grey. With the exception that the forehead becomes flecked with white, and that the rosy tint fades from the breast, the winter-dress is similar to that of summer. In young birds the feathers of the back are barred with black, and the lesser wing-coverts wholly black, although the primaries have already acquired the characteristic white inner webs. Unfortunately, the rosy tint of the breast of the adults in summer-plumage disappears after death completely in specimens exposed to the light.

As a rule, the roseate tern lays only a pair of eggs in the usual apology for a nest; and this affords an easy way of distinguishing them from those of the common species. Occasionally, however, three, and even four, eggs are found in a clutch, although the latter number is probably due to a couple of females making use of the same nest. Compared with those of the common tern, the eggs of the present species are characterised by being slightly more elongated in shape, as well as by the smaller and more sparsely distributed surface-markings, and the more distinct underlying grey spots.

Sandwich Tern The Sandwich tern is the second representative of the genus which was first recognised as a distinct species on the evidence of English specimens, and is, in truth, much better entitled to be named from this circumstance than is the gull-billed tern, since it still breeds in several localities in the British Islands, and in former times had other nesting-sites in the kingdom.

In addition to being the largest of the indigenous British representatives of the group, measuring 16 inches in length, the Sandwich tern, when adult, may be recognised by the black feet, the yellow-tipped black beak, and the slight elongation of the feathers on the nape of the neck. In summer the crown of the head and nape are

of the usual black, the rest of the upper-parts, with the exception of the lower portion of the back and the tail, which are white, being black, while the white lower surface displays a faint blush of salmon-pink, which fades almost immediately after death. In winter the head and neck become white with black streaks, although a black patch persists in front of the eye. Young birds are distinguishable by the more or less marked barring of the upper-parts with black and the horn-coloured beak ; while the chick is greyish tinged with buff, and mottled with black above and white below.

The range of the Sandwich tern includes both coasts of the Atlantic,



MOUNTED IN THE ROWLAND WARD STUDIOS

SANDWICH TERN (SUMMER).

the breeding-area on the western side extending from New England to northern Florida, and occasionally Honduras, and on the eastern side from the Orkneys to Spain, and thence into the Mediterranean, and so on to the Black and Caspian Seas. In winter the species wanders on the western side as far as Central America, where it crosses the Darien Isthmus to enter the Pacific ; and in the Old World to South Africa, the Red Sea, Persian Gulf, and the shores of north-western India in the neighbourhood of Karachi. Although a common summer-visitor to the British Islands, the species has long since deserted its old breeding-haunts in the Scilly Islands, but still nests abundantly on the Farne Islands, as well as in several other localities on the coasts of England and Scotland and likewise in the Orkneys. In England it breeds in the greatest numbers at Ravenglass, on the coast of

Cumberland, where it associates with the common tern and the black-headed gull. An account of this "gullery" will be found in the *Zoologist* for May 1908. In Ireland its chief haunts are on the west coast in the neighbourhood of Killala Bay, Mayo, where it breeds in considerable numbers on a low flat mud-bank near the lake, scarcely raised above the water-level.

Here nesting takes place in May ; the nests themselves being mere depressions in the ground, thinly lined with stalks of grass. The terns also nest on a bare spot on a neighbouring island, and as many as one



MOUNTED IN THE POWLAND WARD STUDIO

SOOTY TERN.

hundred and fifty nests have been counted in a single season in the district. Before incubation has commenced the birds are in the habit of flying above the breeding-place at such a height in the air as to be almost out of sight, screaming and chasing one another in their wild flight. In the Farne Islands they nest on a sloping sand-bank leading to the high ground, and in such numbers that, on an average, every square yard of sand may contain a nest : owing to the more northern position of these islands incubation does not take place till well on in June. In Mayo the ordinary number of eggs in a nest is said to be three, whereas in the Farne Islands there is more generally only a pair ; a difference attributable, perhaps, likewise, to the difference in latitude of the two localities. The eggs, which are very handsomely marked,

and measure from a little less to rather more than 2 inches in length, vary to a remarkable extent both in form and colouring. The ground-colour, for instance, ranges from white through cream and pale buff to brownish buff; while the bold markings of dark or even blackish brown present every conceivable variation in the way of spots and blotches, the underlying markings being deep purple.

Of the sooty tern (*Sterna fuliginosa*), a dark-coloured species ranging from the West Indies across Central America to Polynesia and Australia, a very brief notice will suffice, as, at most, only five authenticated instances of its occurrence in the British Islands were recorded up to the close of the nineteenth century. Of these five instances the first occurred near Burton-on-Trent in 1852, the second near Scarborough in 1863, the third in Berkshire in 1869, the fourth near Bath in 1885, and the fifth (when a dead bird was picked up) in Norfolk in 1900.¹ Of the lesser sooty tern (*Sterna anæsthesia*), which has a somewhat wider range in the tropics than the last, a single example is believed to have been taken on one of the lightships at the mouth of the Thames in 1875.

Little Tern
(*Sterna minuta*).

Reversing the old proverb of "last but not least," we have reserved for the end of the group the smallest indigenous British representative, commonly known as the little or lesser tern. This bird, which has no distinct summer and winter plumage, is sufficiently characterised by its diminutive proportions, its total length not exceeding $19\frac{1}{2}$ inches. In general colouring it resembles the common tern in summer-dress, but differs, among other features, by the white forehead, lemon-yellow beak tipped with black, and pale orange legs. In young birds the top of the head and nape of the neck are streaked with blackish brown mingled with buff, and the back and wings mottled with umber and buff; while the nestling is pale buff more or less distinctly striped with black above, and still paler beneath, except on the throat, which is full buff. The little tern is an Old World species, ranging, in suitable localities, over the greater part of Europe south of latitude 60° and thence eastwards through western and central Asia to India, and in winter visiting Africa (where it sometimes breeds) and even occasionally straggling to Burma and Java. In southern India and the countries to the east its place is taken by the nearly allied white-shafted ternlet (*St. sinensis*) and the black-shafted ternlet (*St. saundersi*). To the British Isles the little tern is a common summer-visitor, arriving early in May and departing in

¹ See W. E. Clarke, *Trans. Norfolk Nat. Hist. Soc.* vol. viii. p. 752 (1903).

September or early October, and building in colonies all round the coasts, although less commonly so than in former years in many parts of the north of England and Scotland. In 1907 a nest was taken in North Uist; and the species also breeds in other parts of the Outer Hebrides. In Ireland its chief breeding-resorts are situated on the coasts of Leinster, Ulster, and Connaught.

Although throughout the British Isles the breeding-haunts of this species are restricted to the coasts, where beaches and sand-banks are selected, in India the little tern, like the other ternlets, breeds chiefly on tidal estuaries, the banks of large rivers, and salt-water lagoons, where it feeds chiefly on fish. In general habits these terns are very similar



MOUNTED IN THE ROWLAND WARD STUDIOS

LITTLE TERN.

to their larger relatives, although their smaller dimensions give them the appearance of being still more active birds. Generally the eggs—two, or less commonly, three in number—are laid in a mere hollow in the bare sand, but in some cases the margin is said to be surrounded with a ring of broken cockle or other shells. The eggs range from $1\frac{1}{4}$ to nearly $1\frac{1}{2}$ inches in length, and are as variable in colouring as those of the Sandwich tern, but are more regular in shape, being nearly oval. From pale cream to drab or buff is the usual range of the ground-colour, upon which are bold markings in the shape of variable spots and blotches of different shades of dark brown, with well-developed underlying purplish marks.

Three instances (one of two birds) of the occurrence of the noddy (*Anous stolidus*) in the British Islands have been recorded, but it does not seem that any one of them is altogether free from a certain element

of doubt ; still, as the bird is widely distributed in tropical and sub-tropical seas, there is no reason why a straggler should not occasionally be blown to the British shores.

Great Skua
(*Stercorarius*
catarrhaetes).

The *Stercorariidæ*, or second family of the *Gaviæ*, is represented only by the large predaceous gull-like birds, known, apparently from their cry of *skui-skui*, as skuas. From the *Laridæ* they are distinguished

by the presence of a bare horny structure—the cere—at the base of the beak, and the powerful, strongly curved, sharp claws ; while

internally they differ

by the much greater

length of the pair

of blind appendages

(*cæca*) to the lower

part of the intestine.

In conformity with

their habits, the beak

of these birds, al-

though of a gull-like

type, is broader at

the base, more arched,

and has the tip of its

upper half overhang-

ing the lower. As

in the gulls and terns,

the three front-toes

are connected to-

gether by webs, and

the hind-toe is small ;

while the front surface of the shank of the leg is protected by large

transverse shield-like scales. In the long and pointed wings, so admir-

ably adapted for a strong swooping flight, the first quill is the longest ;

and in the long and rounded tail, which forms an effective rudder, the

two middle feathers project beyond the rest to a greater or less degree.

Although in several of the species the colouring is very tern-like, in

others the whole plumage is sooty. In addition to the internal

character already noted, skuas differ from gulls and terns in having

only one (in place of two) notch on each side of the lower, or hind,

border of the breast-bone, or sternum.

Skuas are veritable pirates of the gull-tribe, and live by robbing



MOUNTED IN THE ROWLAND WARD STUDIOS

GREAT SKUA.

their own relations, as well as petrels, of their hard-earned prey. Woe betide the unfortunate herring-gull or kittiwake returning to its nest with a fish for its hungry offspring when a great skua hovers in sight, as disgorge its booty it must at the bidding of the bold and unscrupulous robber, who will often seize the discarded fish before it reaches the water! Pirated prey of this description does not, however, by any means constitute the whole food of the skuas, as these robbers will devour eggs of other birds, and even young or feeble birds themselves, as well as such small mammals as they are able to overcome. All the members of the group—only seven in number—breed in high latitudes; the majority in the northern hemisphere, but three at the opposite side of the globe. As a rule, they lay two large olive-coloured eggs spotted with brown.

In some ornithological works all the skuas will be found described under the generic title of *Lecstris* instead of the name here employed. In others the great skua (together with the three above-mentioned Antarctic species) is generically separated from the more typical members of the group as *Megalestris catarrhactes*; this separation being chiefly based on the relative shortness of the tail, in which the two middle feathers project but slightly beyond their fellows, in addition to which these birds are of larger bodily size than the more typical members of the group. Such a distinction is, however, but trivial, and since it does not coincide with the geographical distribution of the two sub-groups, it is not adopted in the present work.

From the other northern representatives of the group the great skua is sufficiently distinguished by its superior size (length 24 to 25 inches) and the above-mentioned features of the tail. The breeding-range of this fine but mischievous species is now greatly restricted—in the British Isles probably to a considerable extent owing to the inconsiderate and short-sighted rapacity of egg-collectors. Apparently the only known existing breeding-sites are in Ireland, the Færoes, and the islands of Unst and Foula in the Shetland group (where they are specially protected), and perhaps on the opposite side of the Atlantic on certain small islands in the neighbourhood of Hudson Bay. There are accounts of these birds having formerly bred both in the Outer Hebrides and the Orkneys, where they are now very rare, but these have been generally discredited, despite the fact that the British Museum possesses a clutch of three eggs from the latter islands. In autumn the great skua journeys southward to the Mediterranean, and it is during this season or in winter that it makes its rare appearances in the British Islands elsewhere than its few last remaining breeding-places.

The general colour of the great skua is dark umber-brown mottled with rufous above, and simply rufous brown beneath; the primary quills having white bases which form a conspicuous patch on the extended wing; the beak and feet are black, and the eye is hazel. A slight superiority in size alone distinguishes the hens. Young birds are very like the adults, but have black spots on the upper-parts. The chick is uniformly buffish grey.

It may be mentioned in this place that according to recent researches the proper name of the present species is *Stercorarius parasiticus*, while the bird referred to below under the latter name should be known as *St. longicaudus*; but it seems a pity to disturb designations which have been so long in use.

The habits of the great skua are those of the group in general, as recorded above. On their nesting-grounds these birds display great boldness, assuming indeed the aggressive of themselves, and thus revealing the position of their nests to the intruder. They go about in pairs, and as the nest of one pair is situated at some distance from that of the next, the visitor is subjected to a continued succession of fierce and unprovoked attacks, which may prove dangerous. So bold and fierce indeed is this bird that it will drive away the lordly sea-eagle, while no raven dare show its beak anywhere near the breeding-grounds. On this account the skua is much esteemed by the Shetlanders. Unlike its smaller relatives, the great skua on some occasions takes to killing and eating kittiwakes and herring-gulls instead of being content with merely despoiling them of their prey. As an instance of their boldness and the impetuosity of their attack, it may be mentioned that in at least one case a great skua in the F  roes has been known to impale itself on a knife held vertically above the head of an islander upon whom it had swooped. The eggs, of which there is generally a pair, but occasionally only one, measure between $2\frac{1}{2}$ and 3 inches in length, and are laid during May or June in a hollow of the moorland moss, sometimes sparingly lined with grass. Dark chocolate or olive-brown is the ground-colour of the eggs, upon which are faintly shown inconspicuous reddish-brown, or, more rarely, blackish spots.

Temminck's Skua For the first representative of the smaller or long-tailed skuas the writer has ventured to propose the name of Temminck's skua (after its first describer), to replace the absurd title of pomarine or pomatorhine skua by which it is commonly known. Although much smaller than the great skua, measuring only 21 inches in length, this species

(*Stercorarius pomatorhinus*).

is rather larger than the next, from which it differs by the circumstance that the elongated middle tail-feathers have rounded instead of pointed tips. This bird is a great wanderer, its breeding-range being apparently contained within the Arctic Circle, while in winter specimens have been taken so far south as Australia, Peru, and southwestern Africa. In the British Islands this skua is chiefly seen during the autumn-migration—occasionally in considerable numbers; and some individuals remain during the winter, although few new arrivals



MOUNTED IN THE ROWLAND WARD STUDIOS

TEMMINCK'S SKUA.

make their appearance during the return spring-migration. To Ireland it is described as a scarce autumn-visitor, while a few individuals have been seen in May and the following months. In the Färoe Islands it is less uncommon, and has been seen in spring as well as autumn.

In disposition Temminck's skua is described as presenting a marked contrast to its large short-tailed relative, and even to the other members of its own group, being a cowardly and clumsy bird, which allows itself to be harried and driven away by its smaller cousins. When attacked by Richardson's skua, these birds, which may easily be recognised at a distance by the peculiar twist of the long middle tail-feathers, either seek to escape by diving, or at close quarters raise their wings to ward off the swoop of their foe. The nest and eggs are

practically similar to those of the great skua, except that the latter are much smaller and usually lighter in colour.

In this species the two middle tail-feathers, which project about 4 inches in advance of the others, are so twisted as to cause the vane to be vertical in place of horizontal. The upper-parts are umber-brown inclining to sooty black on the crown; the neck is white with a few straw-coloured pointed feathers; the breast is wholly white; but the flanks and abdomen are brown. Young birds are sooty brown with rufous bars and mottlings; and differ from those of the two next species in that the shafts and much of the inner webs of the primaries are white. In the adult the legs and feet are reddish black, but in young birds they are mingled yellow and black. A dark phase of the species is not uncommon.

Richardson's Skua
(*Stereorarius*
crepidatus).

Richardson's, or, as it is often called, the Arctic skua, was named *Larus crepidatus* by Sir Joseph Banks, who accompanied Cook on his voyages to the South Seas as naturalist, and who was probably quite unaware that it was to be found breeding in the northern part of the British Islands. At a later date it was named *Lestris richardsoni*



MOUNTED IN THE ROWLAND WARD STUDIOS

ARCTIC SKUA (MALE).

by the ornithologist Swainson, but this title only survives as the popular designation of the species. An inch inferior in length to Temminck's skua, the present species, as already mentioned, may be

readily distinguished from that bird by the pointed tips of the middle tail-feathers. The species is remarkable as being what naturalists call dimorphic, that is to say, it presents two distinct phases of colour, one of which is uniformly sooty, while the other has light under-parts.

In addition to the shape of the elongated middle tail-feathers, Richardson's skua may be recognised at all seasons by the white shafts of all the primary quills. The general colour of the dark phase is uniformly sooty; but in the light phase there is a band of smoky grey on the fore part of the breast; the throat and a collar round the neck are white with a buff tinge; and the rest of the under-



MOUNTED IN THE ROWLAND WARD STUDIOS

ARCTIC SKUAS, PALE AND DARK PHASES.

parts white. In immature birds of the light phase the under-parts are yellowish brown barred with umber; but the chick is uniformly pale chocolate. Seventeen inches is the length of the adult, exclusive of the 3 inches occupied by the middle tail-feathers. The two phases interbreed, so that birds of an intermediate type are not unfrequently seen.

The breeding-range of this species includes the Arctic and sub-Arctic circumpolar regions, descending in the eastern hemisphere about to latitude 55, and embracing the Orkneys, Shetlands, and Hebrides, and parts of Sutherland and Caithness on the Scottish mainland, which form apparently the most southern localities for nesting. In winter these birds may be met with over a very large portion of the globe, inclusive of New Zealand, the Cape of Good Hope, and southern

Brazil, while they also occasionally visit the western coast of India in the neighbourhood of Sind.

Unlike the great skua, the present species, which with its allies is locally known by the name of jaeger, does not attack the intruder on its breeding-grounds, but warily endeavours to entice him away from the neighbourhood of its nest by its movements. In most respects the habits of this bird are similar to those of other representatives of the group; but it may be noted that during summer it prefers marshes and bogs to the sea-coast. Although in ordinary cases these skuas follow the usual practice of their tribe in robbing other sea-birds of their prey, in the Yukon Territory they have been observed, on their first arrival in May, to feed on shrew-mice and lemmings. In England the Arctic skua is most generally seen on the east coast in autumn, occurring from August to October, and being much more abundant in some years than in others. In the south, and more especially in the south-west of England, this species is much more uncommon, and its rarity becomes still more marked when the west coast is reached. In Ireland this is the most common representative of the group, but its visits are irregular and uncertain, although in some years large numbers of these birds are seen: autumn is the usual time for its appearance, although specimens occasionally come in May and June.

Usually the nest is a depression in the moss of the bogs, but an instance is on record of one being lined with grass. The eggs, which are two in number and measure from just over $2\frac{1}{4}$ to a little more than $2\frac{1}{2}$ inches in length, present a variation in colour comparable to that existing in the case of the plumage of the adult

bird; there being a dark and a light phase. In the former case the ground-colour is chocolate, with deep brown or blackish spots uniformly distributed over the greater part of the surface, and the underlying grey markings very inconspicuous. On the other hand, the ground-colour in the light phase is clay-brown, with the dark spots

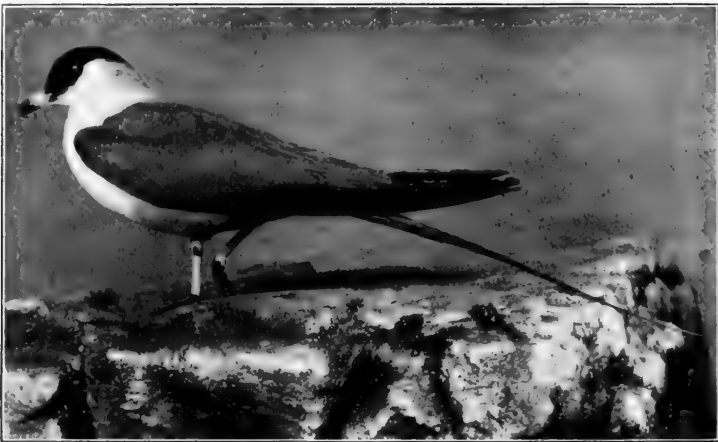


MOUNTED IN THE ROWLAND WARD STUDIOS

YOUNG ARCTIC SKUA.

congregated at the larger end, and the deep-seated markings much more in evidence.

Long-tailed Skua (*Stercorarius parasiticus*).¹ Although there are traditions that the long-tailed, or Buffon's, skua once bred in the north of Scotland, it is probable that there has been a confusion in this respect between Richardson's skua and the present species, and consequently that the latter has never been anything more than an irregular visitor to the British Isles. As its ordinary name implies, this skua—the long-tailed jaeger of some districts, and the



MOUNTED IN THE ROWLAND WARD STUDIOS

LONG-TAILED SKUA.

res-bog-nick (robber) of the Cossacks in Siberia—is distinguished from all the other members of the group by the excessive elongation of the slender middle pair of tail-feathers. As a rule, the colour of the plumage shows a tinge of grey, paler than in the light phase of the Arctic skua. Like the last, this skua breeds all round the Pole, generally within the limits of the Arctic Circle, except in a few localities farther south where high ground affords it a sufficiently cold climate. Its winter-range in the Old World does not extend south of Gibraltar. In addition to the great length of the middle tail-feathers, which may project more than 9 inches beyond the others, this species is characterised by its small size ($13\frac{1}{2}$ inches, exclusive of the aforesaid feathers), and by the fact that only the first and second primary quills of the wing have white shafts. The general colour of

¹ In regard to an alternative name, see above, p. 183.

the upper-parts in the adult is brownish buff, tending to grey, with the cheeks and neck yellowish buff, the breast white, the abdomen greyish brown, the beak dark horn-colour, the legs grey, and the toes black. In young birds there is little or no yellow on the sides of the neck, the under-parts are greyish white with brown bars and more or less distinct streaks on the flanks, and the upper-parts are uniformly sooty brown.

The visits of this species to the British Islands depend to a great extent apparently on the nature of the season, and the abundance or scarcity of fish, with gulls and terns to prey upon them in proportionate numbers. Like the Arctic skua, the present bird is much more commonly seen on the east coast of England in autumn than on either the south or the west sides of our island; and to Ireland, where it is least uncommon on the coasts of Connaught and Ulster, it is described as a rare and uncertain visitor, appearing chiefly in autumn, although occasionally seen in May and June. It may be found, on migration, all along the Scottish coasts, and visits Skye and most or all of the other northern islands, while it breeds on the high grounds of Lapland; another well-known breeding-place being the open moorland of Alaska, where the two eggs are deposited in a cup-like hole in the moss, after the general fashion of the members of this group. In size these eggs are somewhat inferior to those of Richardson's skua, their length varying only between 2 and $2\frac{1}{4}$ inches; they also display a more decided tendency to an olive tone of colour, and are likewise somewhat paler. As a rule, the ground-colour is light clay, but at least two examples are known in which this is replaced by pale bluish green.

Auk or Razorbill (Alca torda). Despite the peculiarity of their bodily form, which recalls in some degree that of the penguins of the southern seas, the group of birds typified by the auk, or razorbill, and collectively known as auks, appears to be nearly related to the gulls and terns, although they constitute a distinct ordinal group—the Alcæ—of which there is but a single family, Alcidæ. Formerly indeed they were classed with the grebes and divers, but this is now known to be an unnatural association, the superficial resemblance existing between the members of the two groups being, as in so many similar instances, merely an adaptation to the same kind of existence. With the gulls and terns the auks agree in the webbing of their toes, which is, however, only another adaptive character, as well as in certain far more important features, such as the structure of the bony palate of the skull, which is of the open as

distinct from the closed type, the slit-like apertures of the nostrils in the skull, and the forked shape assumed by the feather-bearing tract on the lower part of the back. In their peculiar bodily shape and upright position when standing, due to the backward situation of the legs, and the deep and highly compressed beak, as well as by their extremely close and compact plumage, auks present, however, a marked contrast to the gulls and terns; from which they also differ very decidedly in their habits, more especially the great development of the power of diving. Indeed, it is for the purpose of diving that



MOUNTED IN THE ROWLAND WARD STUDIOS

RAZORBILLS IN BREEDING-PLUMAGE.

these birds are so specially modified and differ so remarkably from the normal type. Auks are also characterised by the fact that they deposit their eggs, which are pear-like in form, on a bare ledge of rock, in a cranny, or in a hole burrowed by the bird itself, without the slightest attempt at a nest; and that, as a rule, only a single egg, and this of relatively large size, is laid by each female, while never more than two eggs are incubated together. All the members of the group are sea-birds, and are confined to the northern hemisphere, where they breed in the sub-Arctic and Arctic zones, and in winter visit more southern latitudes, although never reaching any part of the Indian region or crossing the equator. Two moults in the year are characteristic of the group; and it is a remarkable fact that among the puffins,

in which the beak is ornamented by brilliant colours, the entire horny sheath is annually shed, just as are the horns of the prongbuck among mammals. Brilliant-hued crests and tufts of feathers on the sides of the head are also characteristic of some of the puffins. The young remain on the nesting-ledges for some time after hatching. The characters of the single family *Alcidæ* may be taken to be the same as those of the group generally.

In the typical section of the family, which includes the razorbill and its immediate allies, the feathers on the face extend at least as far forwards as the hind margin of the nostril; the nostril itself being either completely exposed or overhung, and to some extent hidden, by thick velvety feathers, which sometimes reach its front edge. The razorbill and the great auk, which alone constitute the genus *Alca*, show the last-mentioned feature in regard to the feathering of the region in the neighbourhood of the nostrils; and are further characterised by the presence of distinct transverse groovings or flutings on the sides of the much-compressed and deep beak, of which the upper half is strongly curved downwards towards the tip.

The razorbill, which is one of the most abundant of British sea-birds, inhabits both coasts of the North Atlantic, breeding in Iceland and the Färoes, on the coast of Norway as far north as latitude 69° , and thence probably as far east as the island of Jan Mayen, while to the southward the coast of Brittany apparently forms the limit of its breeding-range. On the American side of the Atlantic the breeding-area is stated to extend in Greenland as far north as latitude 70° , and includes the coasts of Labrador, Nova Scotia, and Greenland. In winter razorbills wander as far south on the eastern side of the Atlantic as the Mediterranean and even the Canary Islands, and on the western side to the shores of New England. In the British Isles these birds breed from the Shetlands in the north, to Cornwall in the south, almost wherever cliffs suitable to their habits occur; the Bass Rock, and Bempton Cliffs in Yorkshire, as well as the Farne Islands, being well-known resorts; the Channel Islands also coming within their breeding-area. In Ireland, where it is comparatively rare in winter, the razorbill is found breeding wherever there are crags of any size, as the species does not confine itself to the precipitous cliffs favoured by its cousin the guillemot. Favourite Irish resorts are the cliffs of Moher in Clare, the Blasket and Skellig rocks off Kerry, the Bull Rock off the coast of Cork, and the cliffs of Waterford, where this bird is found to the exclusion of the guillemot.

The peculiarly shaped beak, grooved and striped with white,

together with the white stripe running from the beak to the eye, afford unmistakable signs by which to recognise the adult razorbill. Immature birds lack, however, the grooves and stripes on the beak, although showing a more or less well defined eye-stripe. In summer, the head and neck of the adult are sooty brown, the back and wings black glossed with green, while the under-parts and a bar across the wings (formed by the tips of the secondary quills) are white. In winter the upper-parts are browner, and the sides of the head and fore portion of the neck white like the under-parts. Young birds are like the adults in winter. The long woolly down of the nestling is sandy brown above and white below.

The razorbill is a social bird, consorting with its fellows in large flocks at all seasons of the year; and it appears that in many parts of the country, at any rate, its apparently diminished numbers in autumn are mainly due to the fact that a large proportion of the birds betake themselves to the open sea. In the south of Ireland, and probably also on the Cornish coast, some of the razorbills begin to visit their breeding-places as early as the end of February, and by the end of the middle third of the following month have taken up their stations; by the 16th of May laying has commenced, but is not in full swing till the latter part of that month, from which date fresh eggs and callow young may be found side by side till the latter part of June. In the north of Ireland the breeding-sites are not fully garrisoned till April, and in Scotland this does not take place till yet later. By the end of July the birds in Ireland begin to leave their breeding-places, and by the early part of August all have taken to the water. Although, despite the comparative shortness of its wings, the razorbill, after it is once fairly under way, flies well, its real home is the water, on which it frequently sleeps, and in which it dives with remarkable speed and endurance, leaving a line of air-bubbles to mark its course. The object of this diving is twofold, being either to capture fish as they swim, or to pick out shrimps, crabs, or shell-fish from their hiding-places among rocks or seaweed at the bottom. When swimming, these birds will often chase one another in a sportive manner; but, unlike puffins, they never seem to fly about their haunts for the sake of amusement, always plunging headlong into the water immediately on leaving the rocks. On the other hand, they frequently fly long distances to their feeding-grounds, when small parties wend their way in single file, just skimming the surface of the waves. The fry of the herring and the coal-fish is stated to constitute a large portion of the food of the razorbill.

The single egg of the razorbill is generally placed in a less exposed position than that of the guillemot, a hollow or fissure in the rock being frequently selected as the place of deposition, and the egg being in some instances situated a considerable distance from the face of the cliff. In shape the eggs differ somewhat from those of the guillemot, and they do not exhibit the extraordinary variation in colour and marking noticeable in the latter, although the ground-colour may range from blue to red. Both sexes take their turn at the work of incubation. The young, when sufficiently advanced to leave the nesting-ledges, do not do so of their own accord, but in some cases are forcibly hustled down towards the water by the parent birds, not unfrequently falling some distance down steep cliffs in their descent. When fairly in the water the young bird often does not seem at first to know what to do; and, after frequent attempts to make it swim by other means, one of the old birds dives beneath its offspring and carries it on its back out to sea, when, by the diving of the parent, the youngster is left to shift for itself. In other cases, however, the young birds do not give all this trouble, but strike out of their own accord directly they are tumbled into the sea. Where the cliffs are still steeper the old birds carry their young on their backs straight into the sea. On land the razorbill walks very awkwardly and clumsily, and never attempts to travel far by this mode of progression.



MOUNTED IN THE ROWLAND WARD STUDIOS

YOUNG RAZORBILL.

Great Auk Like the razorbill, an inhabitant of both shores of the Northern Atlantic, the great auk, or garefowl—
(*Alca impennis*). the true and original penguin of the older naturalists—always had a much more restricted and more exclusively northern distribution than its smaller relative. And in consequence of this local and confined distribution, coupled with the use of the flesh for food and bait, and in later years the eager hunt for eggs and skins as specimens for collectors, this splendid bird appears to have been completely exterminated before the close of the first half of the nineteenth century. In many modern ornithological works the great

auk will be found described under the name of *Plautus impennis* ; since, however, the species, as its popular name implies, is nothing more than a large auk or razorbill, in which the wings are so reduced as to be useless for flight, and since this is a purely adaptive character, there are no sufficient reasons for sundering it from the typical genus *Alca*.

Since the present work is devoted to existing rather than extinct British birds, of which, by the way, the present species is the only one that has completely disappeared



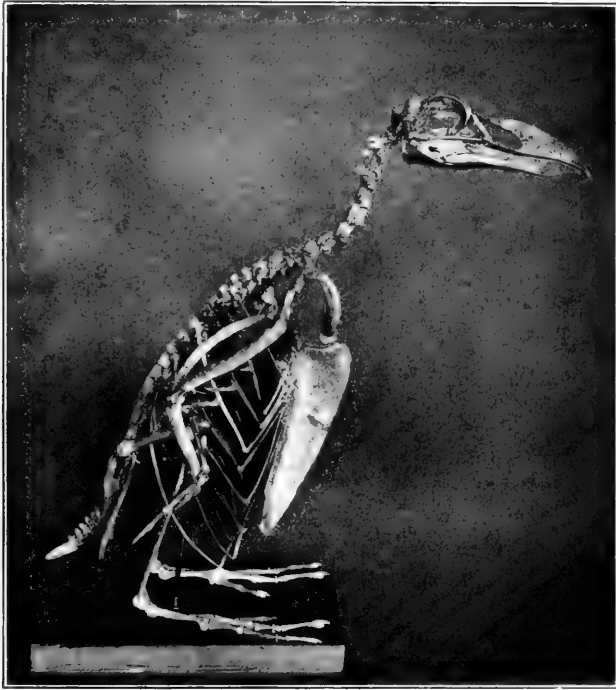
GREAT AUK.

from the world within modern times, a very brief notice of the great auk will suffice. Formerly this bird bred in St. Kilda, where, however, it had become very scarce so early as the middle of the eighteenth century ; but a specimen was obtained from that group of islands in 1821 or 1822, and a second about 1840 ; while a pair, of which the male is in the British Museum, were killed in the Orkneys in 1812, and one was taken near Waterford harbour in 1834, being the only instance of the occurrence of the species in Ireland. Bones of the great auk have, however, been obtained in Antrim and Waterford, as well as in caves at Teesdale, in Durham, and in the superficial deposits of Caithness and Argyllshire. But Iceland, and more especially the now submerged "Geirfuglasker," or garefowl-rock,

was the great stronghold of the species in the eastern hemisphere ; and the last survivors of the species were killed there in 1844. Bones have been also discovered in the peat of Denmark, and in Funk Island, off the Newfoundland coast, the last resort of the species on the western side of the Atlantic, and they have also been recorded from as far south as Florida.

The lack of the power of flight in the great auk was made up by its extraordinary powers of diving and swimming ; but, like many other flightless species, the bird was extraordinarily tame and confiding ;

traits which formed another factor conducing to its extermination. It fed mainly or entirely on fish; and, like its kindred, laid its single egg on a bare ledge of rock. These eggs, of which just over seventy are known to be preserved, are very similar to those of the razorbill, exhibiting much the same variations in colour and markings, but are, of course, much larger. Both skins and eggs of the great auk are now much



SKELETON OF GREAT AUK.

sought after whenever they come into the market, and command extraordinarily high prices. A mounted skin, formerly in the collection of a well-known ornithologist at Scarborough, was, for instance, sold recently for £400, while a single egg has realised as much as 300 guineas.

Guillemot
(*Uria troile*).

Although the guillemot, locally known as the willock or tinkershere, probably once shared with the razorbill the title of auk, it is preferable to restrict that name as a specific designation to the latter bird. From the true auks

(*Alca*) the various species of guillemot are collectively distinguished by the more slender form of the beak, which is devoid of transverse grooves or flutings; a further characteristic of the group being the absence of wattle-like structures on the sides of the face. The nostril, moreover, is closely beset by dense feathering, extending about to the middle of its upper border.

The distribution of the true guillemot is very similar to that of



MOUNTED IN THE ROWLAND WARD STUDIOS

GUILLEMOT (SUMMER).

the razorbill, embracing both shores of the North Atlantic; but the species is represented on the Pacific side of America by a bird which it seems best to regard as a local race (*U. troile californica*), although raised by some writers to the rank of a distinct species. On the east side of the Atlantic the guillemot breeds as far north as the Varanger Fiord (just on the Arctic Circle) and Bear Island, as well as in Iceland and the Färoes; while eastwards the breeding-range extends into the Baltic, and southwards reaches, in isolated localities, along the French and Portuguese coasts as far as some small islands off the mouth of the Tagus. The winter-range extends to

the Straits of Gibraltar, through which a few birds pass into the Mediterranean basin. On the American side the breeding-range is more limited, extending apparently only as far north as latitude 64° or thereabouts, and southwards to New England. In the British Islands the guillemot, which is by far the more abundant bird of the two, selects the same breeding-haunts as the razorbill, although frequenting the ledges of some cliffs too precipitous to suit the taste of the latter. In

England one of the great guillemot-haunts is Flamborough Head, Yorkshire; while in Ireland the precipitous limestone cliffs of Moher, in Clare, form the spot where these birds congregate in the greatest numbers in the breeding-season, the Cow Rock, off the Kerry coast, being another famous resort, where these birds collect in thousands.

With a length of from 17 to 18 inches (the female being rather smaller than her partner), the guillemot in summer has the upper-parts, inclusive of the head and neck, sooty brown, inclining to grey on the back, and the under-parts and a band across the open wing, formed by the tips of the secondary quills, white; but in winter the sides of the head and front of the neck become like the lower surface. Young birds resemble the adults in winter, but have smaller beaks and yellowish instead of olive webs to the toes. In the nestling the colour above is chocolate, with white mottlings on the head, the cheeks and throat being white streaked and freckled with black, while the flanks are dusky brown, and a white patch occurs on each side of the lower part of the back.

The habits of the guillemot are so essentially the same as those of its cousin the razorbill, that what has been written in the case of the one will apply almost word for word to that of the other. Like the razorbill, the guillemot spends the greater part of the year on the sea, resorting to the cliffs only for the breeding-season; when assembled in their thousands, as on the above-mentioned resorts, or on the Farne Islands or Bempton Cliffs, these birds present one of the most wonderful and interesting examples of the profusion of bird-life that can be seen anywhere in the world. The eagerness and impetuosity with which a guillemot pursues its prey under water is exemplified by the fact that, according to a writer in the *Field* newspaper for 1905, one



MOUNTED IN THE ROWLAND WARD STUDIOS

GUILLEMOT (WINTER).

of these birds was actually hooked and captured on an artificial minnow which was being used in pollack-fishing on the Cornish coast.

Like most of its relatives, the female guillemot lays only a single egg ; but the eggs collectively are remarkable for the extraordinary amount of variation they display both as regards colouring and markings, although it may be presumed that each bird always lays eggs of the same type. As the present work is not written to meet the requirements of the collector, and more especially since a fine series is

exhibited to the public in the Natural History Branch of the British Museum at South Kensington, it will be unnecessary to enumerate all the variations presented by eggs of this species. And it will accordingly suffice to mention that while the ground-colour may vary from white and greenish blue to greenish, and again from cream and creamy buff to rufous buff and even red, the markings may be of almost any conceivable form of spots, blotches, and scribblings, ranging in colour from chestnut to black, and at other times may be almost completely wanting. Blown eggs of the guillemot may generally be distinguished from those of



MOUNTED IN THE HOWLAND WARD STUDIOS

BRIDLED GUILLEMOT.

the razorbill, when viewed through the blowing-hole against the light, by appearing of a greenish yellow, in place of a greenish tint. The length of the egg varies from 3 to $3\frac{1}{2}$ inches.

The so-called bridled, or better, spectacléd guillemot, distinguished from the typical form by the presence of a white ring surrounding the eye, and a line extending backwards in the direction of the ear, is frequently described as a distinct species, under the name *Uria ringvia*. It seems best regarded, however, as a peculiar colour-phase of the ordinary species, with which it invariably consorts in an indiscriminate manner.

With regard to Brünnich's, or, as it might well be called, the Arctic guillemot (*Uria bruennichi*), there is great doubt whether more

than a very few individuals were seen or taken on the British coasts up to the close of the last century, and it is accordingly not allowed a definite place in the British list. It is true that in some works a considerable number of alleged occurrences of this bird is recorded, but in 1889 an eminent authority declared that, at most, only two of the instances chronicled up to that date could be regarded as free from doubt. Several of these earlier records refer to alleged Irish specimens, but in the most recent work on the birds of Ireland the species is excluded from the list. Between 1889 and 1900 four authenticated instances of the occurrence of Brün-nich's guillemot have, however, been chronicled. Of these, three were obtained in Yorkshire (one in 1894 and two in the following year), and the fourth in Cambridgeshire in 1895. The thicker beak and the dark colouring—especially the sharp contrast between the black head and the chocolate neck—are the leading distinctive characteristics of this guillemot, which breeds apparently in high latitudes all round the Pole, and occurs rarely in the north of Iceland. In winter it visits Scandinavia, and, as already mentioned, occasionally straggles to the east coast of England.



MOUNTED IN THE ROWLAND WARD STUDIOS

BRÜNNICH'S GUILLEMOT (SUMMER).

Black Guillemot
(*Uria grylle*).

With the black guillemot, easily distinguished from the other members of the group by its relatively shorter beak and the coal-black summer-plumage, relieved by a white "blaze" on the wing, we come to an undoubted British species, which is, however, mainly confined to the more northern districts of our islands. On account of the shorter beak, coupled with the greater difference of the summer from the winter plumage, and the fact that the female lays a pair of eggs in place of the usual one, this guillemot is sometimes made the type of a genus, under the name of *Cephus grylle*, but we may be content to follow in this respect the practice of most of the older British ornithologists. The species is a native of the North Atlantic, breeding on both the eastern and western coasts of Scandinavia as well as those of the White Sea, and also

in the Færoes, while it is likewise common in Iceland, and, on the opposite side of the Atlantic, in Greenland and the neighbourhood of Baffin Bay. In winter it visits the North Sea and the English Channel, and in America travels as far south as Massachusetts. From Spitzbergen to Kamchatka and Alaska it is replaced by Mandt's guillemot (*U. mandti*) which has a larger amount of white in the summer-plumage. In



MOUNTED IN THE ROWLAND WARD STUDIOS

BLACK GUILLEMOT (WINTER).

Great Britain the black guillemot breeds in the Hebrides, Orkneys, and Shetlands, and locally on the west coast of Scotland, as well as sparingly on the Isle of Man. In Ireland it breeds locally where the coasts are rocky, more especially on the north and west sides of the island; but is apparently only found in pairs. It is reported to have formerly bred on the Welsh coast, and at Flamborough Head, where it is still occasionally seen in summer-dress. The black guillemot is a considerably smaller bird

than the common species, measuring only 12 or 13 in place of 17 or 18 inches in length.

In addition to this inferior bodily size, the generally sooty black hue of the plumage, and the conspicuous white patch on the wing, the black guillemot in summer displays an oily green gloss on the feathers, excepting, of course, those of the wing-patch, and is further characterised by the black beak and the vermilion of the sides of the mouth and legs. In winter-dress, which is apparently never assumed by very old birds, most of the upper-parts become barred with white, while the hind portion of the back and the under-parts turn wholly white. Young birds are smoky black above, but have most of the wing-coverts tipped with brownish black, the throat and fore part of the neck mottled with grey, and the flanks fringed with brown. The nestling is uniformly sooty black, becoming paler beneath.

With one exception, the habits of the black guillemot, in localities where it is common, are practically identical with those of the ordinary guillemot and the razorbill. The one exception is the fact, already mentioned, that it lays two eggs, which are usually deposited in crevices of the rocks instead of on bare ledges. Such crevices may be either high up on a cliff or at its foot; and instances are not unknown of these birds breeding—we cannot say nesting—far away from the coast. The eggs, which measure from rather more than 2 to just over $2\frac{1}{2}$ inches in length, are less variable in colouring than those of the guillemot; the ground-colour being usually white or greenish white, with evenly distributed black spots and distinct underlying purplish-grey spots; but both the superficial and the deep-seated markings may run together into blotches, while the ground-colour is sometimes of a lilac shade with brown or grey markings.



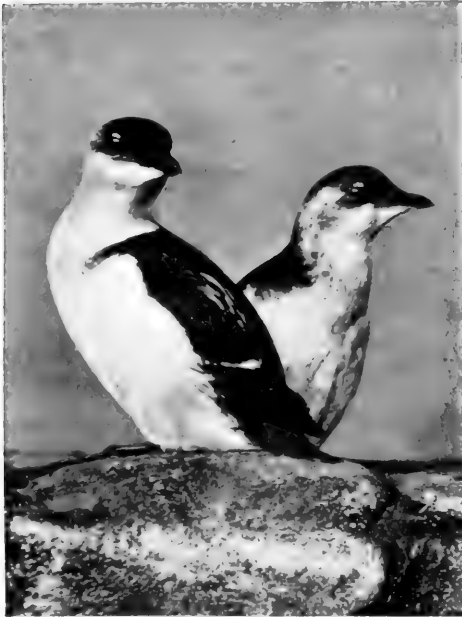
MOUNTED IN THE ROWLAND WARD STUDIOS

BLACK GUILLEMOT (ADULT AND YOUNG IN SUMMER).

Little Auk, or Rotche
(*Alle nigricans*). The pretty little sea-bird commonly known as the little auk, but better designated by its alternative of rotche, in order to distinguish it from the typical auks, has suffered severely from the vagaries of scientific nomenclature, and the present writer will not improbably be charged with adding to its misfortunes in this respect. Originally named *Alca alle* by Linnæus, the species will be found described in the older works on British ornithology as *Mergulus alle*, and it is a pity that it could not have been suffered to retain this very appropriate designation. Unfortunately, however, it was discovered that before the generic name *Mergulus* was published a foreign naturalist had raised Linnæus's specific name to generic rank, and according to the views of the advanced zoologists of the present day the species consequently assumes the alliterative title of *Alle alle*. As the adoption

of such a designation is foreign to the plan of the present work, it has been necessary to revive an alternative specific name; the original Linnæan specific name being, of course, preserved in the higher grade of a generic title.

Although essentially a bird of the open Arctic ocean, the rotche is a winter-visitor to the British Isles and the shores of the North Sea and North Atlantic in general, occasionally wandering as far south as



MOUNTED IN THE ROWLAND WARD STUDIOS

LITTLE AUKS, OR ROTCHES.

the Azores and Canaries, and on the American side reaching the coast of New England. The visitations of the rotche to Great Britain are, however, subject to great fluctuations in point of numbers; and in unusually cold seasons great numbers of these birds often arrive on our shores, the last of these great visitations having occurred in the winter of 1894-95. The strange thing about these visitations—in the case of a species accustomed to the vicissitudes of an Arctic climate—is, however, that in unusually bad weather numbers of these birds are often driven far inland, when, as in the winter above cited, many are picked up dead. The present writer when a boy not unfrequently

saw such a storm-beaten straggler which was captured many years ago on the mill-head in the village of Wheathampstead, near St. Albans, and was long in the collection of the late Mr. Thrale, a farmer-collector living at No-man's-land, a couple of miles distant from the village. With the sale of that collection the history of the specimen ends. To Ireland the species is a rare and irregular winter-visitor, being apparently in most cases driven there by stress of weather. Franz Josef Land, Novaia Zemlia, Spitzbergen, the north of Iceland, and Greenland nearly as far north as latitude 79°, are well-known and favourite breeding-places of the rotche.

It is time, however, to mention some of the leading distinctive

features of this bird, which is some degree intermediate between the true auks and the guillemots, although clearly referable to neither of the two genera. In addition to its diminutive size, the species is distinguished by the absence of any groovings on the beak, which is relatively short, swollen, and somewhat sharply bent down towards the tip, without any notch in its upper half. More important, perhaps, is the circumstance that the oval nostrils are fully exposed and quite clear from the feathering at the base of the beak.

As its ordinary name implies, this bird is the smallest representative of the auk family, measuring only $8\frac{1}{2}$ inches in total length. In summer the crown of the head and upper-parts generally are black tinged with grey, but the sides of the head and neck are sooty black; these sombre tints being relieved by white tips to the secondary wing-quills, white margins to the scapular feathers, and wholly white under-parts. In winter the white of the under surface extends on to the fore part of the neck, the throat, and the sides of the head; but during spring and autumn the throat and chin are mottled with black, as one type of plumage is exchanged for the other. The young in first plumage differ from the adults in summer merely by their inferior size and the lack of gloss on the plumage of the back and wings; but the nestling is uniformly smoke-grey above and somewhat paler below.

As already mentioned, the rotche is essentially a bird of the open sea, which, except for breeding-purposes, seldom makes its appearance on land unless forcibly driven there by inclement weather. In the Arctic regions it is to be met with in summer, especially in the neighbourhood of Spitzbergen, literally by myriads, its flocks darkening the water. With such a high northern range it is not a little remarkable that the bird is unknown in the Arctic Pacific. Where the great bulk of these auks go when their summer-home in the Arctic Ocean is held fast in the grip of winter appears to be still unknown; the same remark being applicable, however, to the case of many other northern sea-birds. The chief food of this species appears to consist of small crustaceans belonging to the group known as Entomostraca; and during the breeding-season a kind of pouch-like enlargement of the cheeks is developed in the old birds in order to enable them to carry food of this nature to their young. Like all the auk-tribe, the rotche is an expert diver, and is able to swim under water with the aid of its rather short wings. These birds have a watchful enemy in the shape of the Arctic fox, and in order that the eggs may not be carried off by this marauder, they are laid in deep holes or burrows under stones; each female, according to the rule among the auk-tribe, depositing

only one egg. Many of these nesting-holes are in cliffs hundreds of feet above sea-level. Oval in shape and, although smooth, without gloss, the eggs of the rotche are in general of a uniform greenish-blue colour, although occasionally speckled with yellowish and more rarely marked with streaks and small blotches at the large end ; this uniform colouring being probably due to the fact of their being laid in concealment. In length they measure from $1\frac{3}{4}$ inches to a fraction over 2 inches.

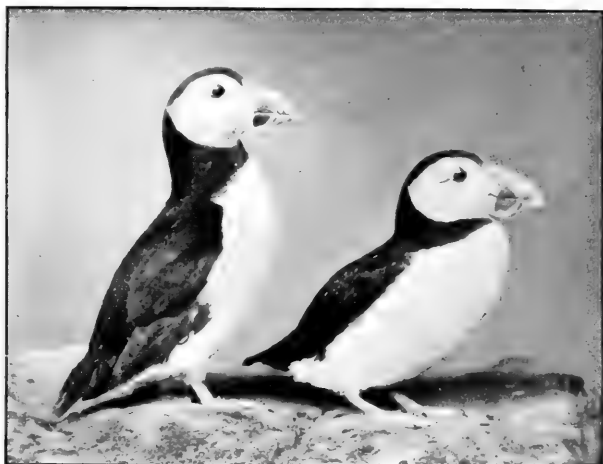
Puffin, or Sea-Parrot (*Fratereula arctica*). Two animals, one a mammal and the other a bird, especially when mounted in museums, look as though they were "fakes," and had been provided with beaks which do not properly belong to them.

The first of these is the curious duckbill, or platypus, of Australia, and the second the puffin, or sea-parrot, of the North Atlantic and adjacent portions of the Arctic Ocean. Puffins are represented by five species, of which three are confined to the North Pacific ; it is true indeed, that by some authorities the puffin found in Spitzbergen, Novaia Zemlia, and Greenland, is regarded as a distinct species, on account of its somewhat superior size and relatively larger beak, but it seems best to class it as a variety of the ordinary puffin, possibly entitled to rank as a separate race (*F. arctica glacialis*). All puffins—both Atlantic and Pacific—may be recognised at a glance by the peculiar shape and colouring of their deeply grooved and abnormally large beaks, part of the horny sheath of which, as already mentioned, is annually shed and renewed. In summer wattles are developed at the root of the beak ; and the nostrils are at all seasons fully exposed and surrounded only by the horn of the beak, being quite clear of the feathering of the head.

The Atlantic puffin in summer has the crown of the head, the upper-parts generally, and a collar round the neck black ; the sides of the head and a band across the nape are grey, and a streak of greyish dun runs down each side of the neck ; elsewhere the plumage is white. In striking contrast to this simple body-livery are the orange of the legs and feet, the orange-red of the terminal half of the beak, the carmine ring round the eye, the orange wattle-like structure at the gape of the mouth, and the blue horny tubercle above and below the eye ; the basal portion of the beak being slaty grey bounded on each side with yellow. In winter the tubercles above and below the eye and the basal portion of the beak-sheath are discarded ; but there is no change in the colour of the plumage. Young

birds have a smaller and smoother beak than their parents, and the face dark grey; while the long down of the nestling is sooty black with a patch of white on the abdomen.

Puffins breed from Spitzbergen, Lapland (where they are extraordinarily numerous), and Iceland, along the whole of the British coasts, in suitable localities, and thence to the north coast of France and western Portugal; while in winter they journey as far as the Mediterranean in Europe and the New England coast on the opposite side of the Atlantic. Puffin Island on the Anglesea side of Beaumaris Bay, and a similarly named island on the Kerry coast, take their titles



MOUNTED IN THE ROWLAND WARD STUDIOS

PUFFINS.

from these birds; while other well-known breeding-resorts in the British Islands are the Scilly and Lundy Islands, the Isle of Wight, parts of the Cornish coast, Flamborough Head, and a number of cliffs on the coasts of Ireland. Lundy Island, it may be added, takes its title from the Saxon name of these birds. To the British Islands puffins are in great part merely summer-visitors, appearing in April and departing in August, but on many parts of the east coast of Scotland they are said to be resident. Turf-clad islands or the grassy slopes of cliffs are their favourite breeding-resorts; and on these they stand in rows like toy-soldiers, and burrow deep into the soil for their breeding-places, some of the nesting-birds constantly poking their heads out of these burrows in an intensely comical manner, while still more comical is the waddling gait of the species. In the fourth

edition of Yarrell's *British Birds* it is stated that in puffins the whole foot—or rather the foot, and what is commonly called, as in this work, the shank—is applied to the ground when walking, but this appears to be incorrect. When they cannot find rabbit-holes to save them the trouble, puffins commonly begin to excavate their breeding-burrows during the latter part of May in England; the work being mainly accomplished by the cock, although incubation is performed by the hen, who is fed with fish during that period by her attentive partner. At the end of the burrow, which may be as much as a yard in length and is frequently curved, is deposited the single white or bluish-white egg. Although almost uniformly coloured examples are known, the eggs, which measure from 2.15 to 2.7 inches in length, are usually spotted and blotched with pale purple and grey, but may also show spots and scribblings of yellowish brown. Although such inelegant walkers, puffins are excellent divers and strong fliers, making long excursions from and to their breeding-places out to sea in search of the young fishes which, with crustaceans and insects, constitute their food. At certain seasons the chief food-supply appears to be formed by young herrings, but on some occasions by young sand-eels or launces, of which forty-one have been taken from the crop of a single bird.¹ Young puffins remain in their breeding-holes for about three weeks after hatching, when they are enticed out by their parents, and, with the latter, soon after desert the land for the open sea. This account may be closed by the mention of the curious fact that on September 20, 1905, three puffins were taken in Kerry by rod and line, two by fly-fishing, and the third while trolling for bass.

Storm-Petrel
(Procellaria
pelagica).

The petrels and their allies, constituting the order Tubinares, present a remarkable contrast in regard to geographical distribution to the auks, for in place of being confined to the higher latitudes of the northern hemisphere, they are mainly characteristic of the southern hemisphere, and have but a comparatively small number of representatives on our side of the equator. From the general appearance of many of them, due to adaptation to a similar mode of life, the petrels (as the entire group may be collectively termed) were at one time associated with the gulls and terns; and they agree with the latter and all the ordinal groups hitherto treated of in the structure

¹ Lest the present writer should be accused of error, it may be pointed out that in the work where this statement occurs, the fish is incorrectly said to be the lancelet, which, by the way, is not a fish at all.

of the bony palate of the skull, which is of the open type. They differ, however, in that the apertures of the nostrils in the skull are of the oval instead of the slit-like type; while they are broadly distinguished from all other birds by the circumstance that the nostrils terminate externally in tubes, which may be either separate or united. The latter feature is, of course, alone sufficient to enable any one to recognise a petrel at a glance; but it may be well to refer to a few other characteristics of the group. In common with some of the members of the cormorant group, all the petrels have the horny sheath of the beak divided by deep furrows into several distinct pieces, and the tip of the beak is sharply bent downwards. The above-mentioned separate pieces of the horny sheath of the beak have been severally identified with the shield-like scales on the heads of lizards; and if this identification be well founded, it would seem that a beak of the petrel-type is the original form from which has been derived that of ordinary birds, covered by an undivided horn-sheath. This, however, is by the way; and to revert to the characteristics of the present group, it may be noted that the three front-toes are webbed, and that the hind one is never large and may be altogether wanting. In the generally long wings there are eleven primary quills; the oil-gland is tufted; and the feather-bearing tract in the spinal region is well defined on the sides of the neck by featherless areas, and forms a fork on the lower part of the back.

All petrels, except during the breeding-season, are essentially birds of the open sea, and display a remarkable range of variation in bodily size; the species to be immediately considered being scarcely larger than a swallow, while the lordly albatross exceeds in wing-span every other living bird except the condor. In the case of most species only a single egg is laid by the female; this being generally deposited in a burrow dug by the bird itself. As a rule, the eggs are white, but they may have a zone of reddish dots at the larger end. Both sexes are alike in plumage, there is only a single moult, and the young are helpless and clad in down till full-grown. Small fishes, crustaceans, and



MOUNTED IN THE ROWLAND WARD STUDIOS

STORM-PETREL (MALE).

oceanic molluscs form the natural diet of the petrels; but many of the species, like gulls, pick up the refuse thrown from ships. The half-digested food forms an ill-smelling oily fluid, which is disgorged in greater or less profusion by most of the species when wounded or otherwise captured.

"Mother Carey's chicken," as the storm-petrel is commonly termed by sailors, is the typical representative of the whole group, and thus the petrel *par excellence*. It might naturally be supposed that the name petrel bears some reference to rocks, and etymologically it does so; but it actually means the "bird of St. Peter," and appears to have been applied to the present species from the fact that when the bird is skimming the surface of the waves in its usual fashion, its feet from time to time strike the surface of the water, thus suggesting the idea of walking on the waves.

Although they have been divided into two such groups, all the British petrels may be conveniently included in the single family Procellariidæ. The storm-petrel and its more immediate relatives form a group of genera in which the species are of small size; all being collectively characterised by the union of the two nasal tubes, and by the second primary quill exceeding the others in length. The storm-petrel and the fork-tailed petrel are further characterised by the relative shortness of the shank of the leg, which is covered in front with a number of six-sided shield-like scales, the presence of at least thirteen secondary wing-quills, and by the outer toe being shorter than the middle one. Together with one nearly allied Pacific species, the storm-petrel differs from the other British representatives of the group by the absence of any forking in the tail.

In length the storm-petrel, which inhabits the Atlantic Ocean as far south as the coast of West Africa and also the western portion of the Mediterranean, measures only $6\frac{1}{2}$ inches. Its sooty black plumage, beak, and legs, relieved only by the white upper tail-coverts, the white edges to the greater wing-coverts, and a white patch below at the base of the tail, coupled with its storm-loving habits, have doubtless earned for the species its sailors' sobriquet of "devil-bird." Immature birds differ merely by the smaller amount of white below the tail and the buff edgings to the greater wing-coverts; while the down of the nestling is sooty black both above and below.

The wild Atlantic coast of Ireland is one of the favourite haunts of the petrel, and to the natives of the storm-swept Blasket Islands, forming the extreme western point of Kerry, these birds were at one time of considerable importance. A rush drawn through the oily

body of a petrel formed, indeed, the only light of these primitive people; while the young birds, when roasted, constitute, it is said, a by no means despicable dish. In summer the petrels breed largely on the Blaskets, making their nests, which consist of only a few blades of dry grass, in holes among the rocks scattered over the turf-clad slopes, or in crevices of stone-walls. The single egg, which measures just over an inch in length, and is dull or dirty white in colour, sparsely dotted with reddish-brown specks sometimes forming a zone near the larger end, is laid in May; but this appears to be followed in the late summer or early autumn by a second, as fresh eggs have been taken on the Blaskets in September. The Skelligs, which are near the Blaskets, and Tory Island, off the Donegal coast, are other favourite breeding-places of the petrel in Ireland; while to the northward the Hebrides, Orkneys, Shetlands, and F  roes afford well-known nesting grounds. A few petrels also breed on the Welsh coast and on the Scilly Islands.

Fork-tailed Petrel
(*Oceanodroma*
leucorrhoa).

Much less common around the coasts of our islands is the fork-tailed, or Leach's, petrel, a member of a genus, with about a dozen species, widely distributed on the warmer seas, and characterised by the deep

forking of the tail and the relative shortness of the shank, or lower segment of the leg, which is never longer than the middle-toe and claw. The present species is a native of the temperate zone of the North Atlantic and Pacific, and is in general only a winter-visitor to the shores of the British Islands, where it is not uncommonly driven far inland during stormy weather, a specimen having been taken in Somerset so recently as 1903. It nests, however, on the island of St. Kilda and in the Outer Hebrides, and a few pairs have from time to time been detected breeding on the Blasket Islands, off the Kerry coast, as well as in Mayo, where an egg was taken in 1899. Otherwise this petrel is chiefly known as an accidental visitor to Ireland.



MOUNTED IN THE ROWLAND WARD STUDIOS

FORK-TAILED PETREL.

In addition to the deeply forked tail from which it takes one of its names, Leach's petrel, which has the general sooty plumage of most of its relatives and measures 8 inches in length, is specially characterised by the black legs, the smoky grey middle and greater wing-coverts passing into white on the edges of the greater coverts and innermost secondary quills, the short white tips to the scapulars, the white upper tail-coverts, and the presence of a white patch on each side of the under side of the tail. Immature birds cannot be distinguished from the adults in colour. The long down of the chick differs



MOUNTED IN THE ROWLAND WARD STUDIOS

MADEIRA PETREL.

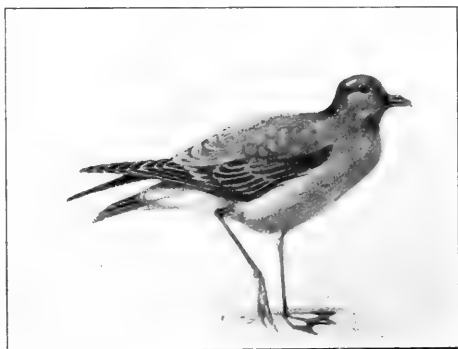
from that of the nestling storm-petrel by being uniformly greyish brown in place of black.

In St. Kilda these petrels breed on the flat ground at the summit of the cliffs in the neighbourhood of the capital town, each bird laying its single egg at the bottom of a burrow of considerable depth ; several of such burrows being often found in proximity, and some of them having two entrances. During their sojourn on land these petrels, like many others of the tribe, are largely nocturnal, keeping within their holes during the day-time. Both birds take their turn at incubation ; but it is somewhat remarkable that only a single bird is reported to be found in each hole, thus leaving unexplained what becomes of the individuals off duty. The egg is slightly larger than that of the storm-petrel, and usually shows a ring of pale lilac specks at the large end.

A single example of the Madeira petrel (*Oceanodroma cryptoleucura*), which is a darker bird than the last, with broader black tips to the upper tail-coverts and the outer tail-feathers white at the bases, was picked up dead in Kent in 1895.

Wilson's Petrel
(*Oceanites*
oceanicus).

All the casual visitors to the British Islands hitherto noticed breed in the northern hemisphere, and reach our islands from east, north, or west. Wilson's petrel, on the other hand, nests in the Antarctic and the Australasian islands, whence it wanders to the Indian Ocean and the Atlantic, occasionally reaching the British Islands by the latter route in autumn. This petrel, together with an allied species from the American side of the South Pacific, represents a genus distinguished from the two last by the claws being somewhat depressed instead of distinctly compressed, by the relatively greater length of the shank or lower segment of the leg, which is covered in front with a single greave-like shield in place of a number of small hexagonal shields, the absence of the hind-toe, which is represented only by a vestige of the claw, the presence of only ten secondary quills, and the approximate equality in the length of the outer and middle toes. In addition to these features, Wilson's petrel, which measures 7 inches in length, is easily recognised by the yellow patch at the base of the webs of the toes, and the squared tail. The plumage is for the most part of the usual sooty black, but the upper tail-coverts and a patch beneath each side of the tail are white, as in Leach's and the storm petrel, and the bases of the tail-feathers, more especially the outer ones, are also white.



WILSON'S PETREL.

Apart from a number seen off the Land's End in 1839, Wilson's petrel seems to have occurred about fifteen times in the British Isles up to the end of 1900, so far as our records extend back. Most of these occurrences have taken place in England, there being only one instance of the species having been taken in Scotland, and that in Jura in 1891. One example is said to have been killed on the Irish coast

in 1840, and two specimens were taken in Ireland in 1891, one in Fermanagh and the other in Antrim.

This petrel, which was formerly known as *Procellaria wilsoni*, has much the same habits as the other members of the group; and it will suffice to state that in Kerguelen Island, in the South Atlantic, it lays its single egg on the bare ground, either in some natural depression among the stones, or in a slight hollow scratched out by the birds themselves.

Of the white-bellied, or frigate, petrel (*Pelagodroma marina*), which represents a genus by itself characterised by the broad and flattened claws and the grey and white plumage, one specimen was picked up dead on Walney Island, Lancashire, in 1890, while a second was recorded from Colonsay, off the west coast of Scotland, in 1897.

Fulmar
(**Fulmarus**
glacialis).

With the large grey gull-like bird known as the fulmar we come to the second group of British petrels, all of which are of larger bodily size than the storm-petrel and its relatives, and form a group distinguished from the latter by the fact that the nasal tubes may have distinct double apertures and are generally divided internally, while the second primary quill is not longer than the first, and may be shorter. The number of tail-feathers is variable; but there are certain features in the skeleton by which the members of this section of the family (regarded by some writers as a family by itself, under the name of Puffinidæ) may be distinguished from the last. Of the fulmars there are four species, of which three are confined to the Pacific, while the present one is a native of the North Atlantic. Together with certain other allied southern genera, these birds are characterised by the presence of more or less distinct transverse ridges on the sides of the palate; while they are specially distinguished by the powerful beak and feet, the enclosure of the nostrils in a short single tube by which they are somewhat concealed, and the presence of fourteen tail-feathers.

Always bearing in mind that it is broadly distinguished from the gulls by its tubular nostrils, the fulmar cannot possibly be confounded with any other British bird. Like some of the skuas, it exhibits two distinct colour-phases, in the more common of which the back and part of the wings are light grey, the quills dusky black, the head, neck, and under-parts white, and the legs and feet bluish-brown colour, while that portion of the beak which overhangs the nostrils is nearly black and the remainder yellow. On the other hand, in the less common dark phase the general colour of the plumage is uniformly dusky grey

above and somewhat paler beneath. The nestling is clothed in long white down. In the adult male the total length is $18\frac{1}{2}$ inches, and in the adult female an inch less.

The only breeding-places of the fulmar in the British Isles are Cape Wrath, on the northern coast of Sutherland (a locality only made known in 1901), the island of Foula in the Shetlands, and several of the Inner Hebrides, whence the species wanders in summer to the Outer Hebrides, more especially St. Kilda and Borrera. In modern times Foula dates as a breeding-place only from the year 1878. On the American side of the North Atlantic, Baffin



MOUNTED IN THE ROWLAND WARD STUDIOS

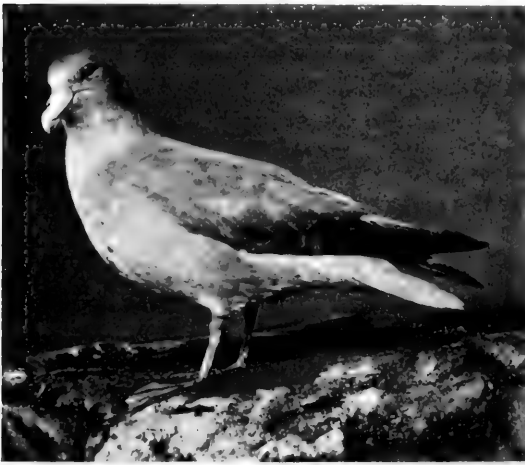
FULMAR (LIGHT PHASE).

Bay and Greenland are well-known resorts of the species, whence its range extends eastwards to Iceland, Spitzbergen, Novaia Zemlia, and Franz Josef Land.

The fulmar is a bird of great importance and value to the inhabitants of the Westman Islands, to the south of Iceland, where it is considered that in a good season something like 30,000 head are taken. The bodies of the birds, when cleaned, smoked, and dried, are used for food ; while the fat is employed for two purposes, being either boiled down into oil, or salted and flavoured with spices, when it takes the place of butter in the household economy. About ten good fulmars are required to yield a litre of oil ; this oil being largely used for lighting purposes.

On the east coast of Scotland the fulmar is by no means an uncommon bird, but as we pass south it becomes more and more rare, although seen all along the English coast from Northumberland to Essex at times, while it has occurred occasionally along the southern coast as far west as Devon and Cornwall. To Ireland it is a rare and accidental visitor, generally driven on shore by violent storms.

The fulmar, except during the breeding-season, is a bird of the open sea, where its great powers of flight enable it to keep pace with a fast steamer without apparent effort. Garbage thrown from vessels forms a large portion of its food, and to obtain nutriment of



MOUNTED IN THE ROWLAND WARD STUDIOS

FULMAR (DARK PHASE).

this nature fulmars accompany whaling vessels for long distances. In swooping at scraps of offal these birds are said to frequently alight feet-first on the water, in place of plunging in gull-fashion. Fishes, especially herrings, are also largely eaten; and the eagerness of these birds in rushing after the herring-nets is frequently so great as to lead to their capture. On the broken grassy slopes at the summits of the St. Kilda

cliffs fulmars breed in vast numbers; and the silence of these birds in their nesting-haunts presents a remarkable contrast to the incessant clamour of the kittiwakes breeding on the ledges of the cliffs below. The single white egg is usually deposited in a hollow scratched by the parent birds in the turf and often lined with herbage, during the latter half of May, and by July the young are reported to be able to fly. More rarely it may be placed on a bare rocky ledge, where it is prevented from rolling down by being laid in a slight hollow. On the turf-clad heights of St. Kilda so numerous are the sitting fulmars in the middle of the breeding-season that the whole surface of the ground is flecked with white patches. The egg has a rough chalky-white texture, and measures between $2\frac{3}{4}$ and a fraction over 3 inches in its longer diameter. To the natives of St. Kilda the bird and its eggs are as

valuable as they are to the Westman islanders, and, in former days at any rate, constituted a large portion of their food-supply.

Here it may be mentioned that an individual of the widely distributed southern bird known as the Cape petrel or "Cape pigeon" (*Daption capensis*) was reported to have been killed near Dublin in 1881. Since, however, no mention of this species is made in the latest work on Irish birds, it is to be presumed that there is some error in the statement, or that the bird was not a wild one.

Great Shearwater (*Puffinus gravis*). It is a matter for regret that the scientific name *Puffinus* was applied by Linnæus to one of the shearwaters instead of to the true puffin, more especially as this term has been raised to the rank of a genus by later naturalists, in consequence of which all the shearwaters now figure as *Puffinus*,



MOUNTED IN THE ROWLAND WARD STUDIOS

GREAT SHEARWATER.

while the true puffins, as we have seen, are designated *Fratercula*. But this is not all, for when the shearwaters are made the type of a family they take the name of Puffinidæ, or puffin-tribe, to the exclusion of the typical puffin. Absurdity in nomenclature can scarcely go much further. The anomaly arose, however, from the circumstance that the Manx shearwater, the type of the whole group, was called "puffin" by the English naturalist Willughby, who lived before the time of Linnæus; and according to modern rules of nomenclature appears to be unavoidable.

All the shearwaters, in common with certain allied genera, may be easily distinguished from the fulmar by the absence of transverse ridges on the sides of the palate; while the shearwaters themselves, of which there are some twenty species with a world-wide distribution, are specially distinguished by the nostrils terminating in two distinct apertures, directed forwards and upwards, with a wide division between them, while the shank of the leg is laterally compressed, with a sharp front edge, and there are only twelve tail-feathers.

As implied by its popular name, and likewise the scientific title *Puffinus major* by which it is designated in the older works on British birds, the greater shearwater is the largest representative of the group with which we have to deal, measuring no less than 19 inches in length. In colour the plumage is dark brown above and white below, with the exception of the sides of the breast, the flanks, the abdomen, and the under tail-coverts, which are brown, the white tips to the outer upper tail-coverts, and the paler edges to the feathers of the back and the wing-coverts; while the beak is dark brown, and the legs are pinkish white. Immature birds do not differ from the adults in colouring, and the chick appears to be still unknown.

In all the petrel group, it may be mentioned, the nestling possesses tubular nostrils of the same type as its parents.

The great shearwater is a bird to which climate apparently makes no difference, since its range extends in the Atlantic from Greenland, Iceland, and the Färoes in the north, as well as in parts of the Baltic, right across the tropics (where it is found in Florida) to the seas of the Cape of Good Hope, Kerguelen Island, the Falkland Islands, and Tierra del Fuego. It does not, however, occupy the whole of this extensive area, as in the Azores and Canaries (as well as in the Mediterranean) it is replaced by Kuhl's shearwater (*P. kuhli*), which is also the species commonly met with on the western coasts of France, Spain, and Portugal. It is not a little remarkable that the breeding-area of the great shearwater is still (1905) unknown, although it is considered probable that it is somewhere in the southern seas. An example of Kuhl's shearwater was picked up dead on the beach at Pevensey, Sussex, in February 1906.

To the coasts of the Scilly Islands, Cornwall, and Devon, the great shearwater is an annual visitor in autumn, but as we proceed eastwards along the coast it becomes gradually scarcer and more uncertain in its appearance, while in East Anglia and the northern counties of England it is always very rare. On the other hand, still farther north, as at Rockhall and St. Kilda, it has been seen locally in some numbers.

To Ireland it is an uncertain visitor, making its appearance chiefly along the west coast in autumn, where it has occasionally been taken by fishermen on their lines, while in two instances dead or dying individuals have been washed ashore. As this species is essentially a bird of the open ocean, the landsman has but little opportunity of observing its habits. According to a well-known account, these shearwaters, when in pursuit of fish, are in the habit of flying rapidly just above the surface of the water, when from time to time they disappear without the slightest check in their headlong course beneath the waves, from which they again emerge after a few yards; this movement being repeated time after time.

Manx Shearwater

(*Puffinus*
anglorum).

Since the Manx shearwater is the species to which Linnæus gave the name of *Procellaria puffinus*, those ornithologists who refuse to accept the elevation to generic rank as sufficient recognition of a species-name, and at the same time do not object to alliterative nomenclature, designate this bird *Puffinus puffinus*, in preference to the title by which it has so long been known.

In addition to its inferior size (total length 15 inches), this species may be distinguished from the great shearwater by the sooty black upper-parts, the white under surface, broken by mottlings of greyish brown on the sides of the neck and the upper part of the breast, and by a patch of brown on each side of the abdomen, the flesh-coloured legs and feet, and the blackish-brown beak. Young birds in their first plumage are of an even deeper tinge of sooty brown than the



MOUNTED IN THE ROWLAND WARD STUDIOS

MANX SHEARWATER.

adults, and have the throat and breast mottled with brownish grey, the flanks and abdomen brown, the legs brownish, and the webs of the toes pale yellow. With the exception of a white stripe along the breast and abdomen, the down of the chick is greyish black.

The Manx shearwater takes its title from its former abundance in

the small islet known as the Calf of Man, where, however, it has been completely exterminated by rats. Unlike its larger relative, it breeds on the coasts and islands of the North Atlantic, both on the American and the European side; some of its favourite resorts in the latter being Iceland, the F  roes, Norway, the Orkneys, Shetlands, Hebrides, and thence locally along the west coast of Great Britain as far south as the Scilly Islands, as also on many parts of Ireland where there are either bold cliffs on the mainland or islets off the shore. In winter the species ranges as far south as the Canaries, Azores, and Madeira, where it also breeds, in one hemisphere, and Brazil in the other. Of the small British islands, other than those north of Scotland, to which this species specially resorts for breeding, mention may be made of Annet in the Scilly group, Caldy in Carmarthen Bay, Skomer and Skokhum, farther up the Pembrokeshire coast, and Rum in Scotland. On the east side of Great Britain no breeding-places are known, although the bird, which is the commonest of the British shearwaters, may be met with at the proper season from Essex to the north of Scotland.

In the Shetlands and Orkneys (where they are known as lyric-birds) these shearwaters make their appearance for the breeding-season towards the latter part of April or early in May; and immediately on arrival set vigorously to work to drive tunnels in the sandy soil, or to put those of last year into suitable repair, for the reception of the eggs and the accommodation of the female during the period of incubation.

The burrow, which is often of considerable length, appears to be entirely excavated with the beak, while the soil is thrown out in a heap at the entrance by means of the legs: if this heap be disturbed to any extent the bird is almost sure to desert its nest. Small cuttle-fishes and seaweed and other vegetable substances have been taken from the stomachs of these birds; but it is probable that fish constitutes a portion of their diet. During the breeding-season these birds generally pass the whole day in their burrows, so that any one who is ignorant of their habits might imagine that they are absent from districts where they abound. When they do come out, in the evening, they are active enough; and their prolonged wailing cries may often be heard throughout the night. While one observer testifies that when taken from their burrows they emit the oily fluid from the mouth characteristic of petrels in general, another writer states that none of the shearwaters possess this disagreeable habit. The name of shearwater, it may be mentioned, is believed to be

derived from the bold swoop with which these birds plunge breast-forwards into the sea, quite unlike the manner in which a gull or a tern enters the water. The single white egg may be deposited either on the bare soil of the bottom of the burrow, or, and this more generally, on a small carpet of dried grass or other herbage. It is believed that a second egg is laid after the first nestling has taken its departure from the burrow. When the egg is taken, the parent generally remains sulking in her burrow for several days before taking her final departure. The egg is pure white, and measures from 2.3 to 2.65 inches in length. Instead of departing from the burrow as soon as fully fledged, the nestling often remains there for days longer, and is fed so assiduously by its hard-worked parents that it becomes literally a mass of fat, in which condition it is regarded as a great delicacy by the hardy fishermen of Orkney and Shetland, although it is probable that such a rich and oily dish would not appeal to more southern palates. Occasionally the egg is deposited in the crevice of a rock instead of in a burrow.

Of the Levantine shearwater (*Puffinus yelkouanus*), a Mediterranean species of rather larger size, and somewhat paler and browner in colour above, with dusky brown flanks and (usually) under tail-coverts, a specimen was taken at Torbay in 1875 and a second at Plymouth about the same year, while several were secured at Scarborough in 1899 and 1900. Probably, indeed, the species is far less uncommon on the British coasts than is generally supposed, as when on the wing it cannot apparently be distinguished from the Manx shearwater, of which it is the Mediterranean representative.



MOUNTED IN THE ROWLAND WARD STUDIOS

LITTLE DUSKY SHEARWATER.

Of another shearwater, formerly regarded as the dusky shearwater (*P. obscurus*), but now identified with the little dusky shearwater (*P. assimilis*), two specimens were recorded from the British Islands

up to the close of last century, one taken in Valentia Harbour, Kerry, in May 1853, and the other picked up dead near Bungay, Suffolk, in April 1858. A third example was taken alive in Kent in November 1905. This species is a native of the Australian seas, whence it wanders in summer over the Atlantic Ocean as far as Madeira, and occasionally straggles still farther northwards. Neither the young in first plumage nor the chick in down appears to be known.

Sooty Shearwater Long mistaken for the immature condition of the (Puffinus griseus). great shearwater, or as a dark phase of the adult of the same, the sooty shearwater is now known to

be a distinct species, mainly differing from the former by a slight inferiority of size (18 in place of 19 inches in length), by the dark



MOUNTED IN THE ROALAND WARD STUDIOS

SOOTY SHEARWATER.

brown under surface of the body, and by the legs being blackish on their outer and lilac-grey on their inner sides.

Breeding in the southern hemisphere, especially in New Zealand and the Chatham and Auckland Islands, this shearwater is only a summer-visitor to the North Atlantic and Pacific, at which time, of course, its haunts in the Antarctic are held in the grip of winter. This southern breeding-habitat, it may be mentioned, affords strong confirmatory evidence of the theory that the great shearwater also nests in the southern hemisphere. The dusky shearwater has been obtained as far north in the western hemisphere as the Kurile Islands,

and in the eastern hemisphere as the Färoes. Up to the year 1900 some twenty individuals had been recorded from the British Isles, these occurrences including the south coasts of England as well as Scotland and Ireland; and other instances were noted in Stromness and the Firth of Forth in 1903. It is probable, however, that this bird is frequently mistaken for the immature condition of the great shearwater, and that it may be an annual, or, at all events, a not unfrequent visitor to our shores. In its southern breeding-home the sooty shearwater displays, apparently, habits very similar to those of the Manx shearwater in the north; its burrows in the Chatham Islands, which are excavated in peaty soil, run, however, horizontally for a distance of a yard or so, when they turn suddenly to one side, to terminate in the nest-chamber, which in each case is lined with a slight layer of twigs and grass for the reception of the single white egg. On certain islands off the southern coast of New Zealand, these birds share their burrows with the tuatera lizard. Here, when the young are nearly ready to fly, the nests are annually raided by the Maories, by whom roast shearwater-chick is esteemed a special delicacy. From Stewart Island, where these birds are specially numerous, large numbers of the young are potted and despatched northward for consumption by the inland tribes.

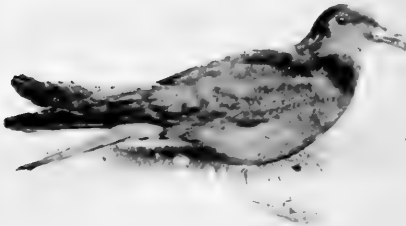


SOOTY SHEARWATER.

A very brief notice must suffice of four other representatives of the petrels, of which a stray example or so has wandered to the British Isles. The first of these is the capped petrel (*Æstrelata hesitata*), apparently a native of the coasts of Haiti and Martinique, in the West Indies, and a member of a genus, with some thirty species, differing from the shearwaters by the rounded front of the shank of the leg. A single example of this species was taken at Swaffham, Norfolk, in the spring of 1850. Of the second species, known as the collared, or white-throated grey petrel (*Æstrelata brevipes*, or *torquata*), a specimen was taken in Cardigan Bay in the winter of 1889. It is a small bird, measuring only $11\frac{1}{2}$ inches in

length, and is a native of the western Pacific, especially in the neighbourhood of Fiji and the New Hebrides. Of Schlegel's petrel (*Æ. neglecta*), a South Pacific species, a specimen was picked up dead at Tarporley, Cheshire, in April 1908.

The fourth species, a still smaller bird, is Bulwer's petrel (*Bulweria*



MOUNTED IN THE HOWLAND ARD STUDIOS

BULWER'S PETREL.

bulweri), one of two representatives of a genus distinguished from the other members of the present group by the long wedge-shaped tail and the sooty black plumage. Bulwer's petrel is common to the North Atlantic and North Pacific, and is a well-known bird in Madeira and the Canaries. A dead specimen was picked up near Tanfield, Yorkshire, in the spring of 1837, a second

at Beachy Head, Sussex, in 1903, and a third in the same county in the following year; these three specimens being the only instances recorded up to the present time (1908) of this species in the British Isles.

**Great Crested
Grebe (*Podiceps
eristatus*).**

With that handsome bird, the great crested grebe, we come to the largest representative of a group of water-birds typified by the familiar dabchick, and forming not only a distinct family—the Podicipedidæ—but likewise a separate order, the Pygopodes. By the older ornithologists the latter group was taken to include likewise the auks and the divers. The auks, as we have already seen, are entitled to form a distinct order by themselves; but it seems on the whole advisable to retain the divers (which are regarded by some authorities as forming a third order by themselves) in the Pygopodes. The grebes and divers, as the group (of which the serial position is by no means certain) may be called, will, according to this arrangement, be collectively characterised by the following features:—

In all cases the legs are situated very far back on the body, and the front edge of the shank is sharpened, in adaptation to aquatic habits, while the beak is always straight and pointed; but the feet may be either furnished with lobe-like expansions of skin or completely

webbed. The bony palate of the skull and likewise the apertures of the nostrils in the same are of similar type to those in the petrels; that is to say, the former is of the open, while the latter are of the oval type. The nostrils themselves are pervious. The plumage is characterised by the shortness and denseness of the feathers, which are furnished with after-shafts; and a marked difference from the two preceding groups is to be found in the circumstance that the whole of the neck bears feathers, instead of naked areas occurring on each side. As in the petrels, the oil-gland is tufted; but the blind appendages of the intestine (cæca) are well developed, instead of being rudimentary or absent. A peculiar anatomical feature of the group is the great prolongation of the front portion of the upper extremity of the second segment of the leg, which forms a triangular spine projecting in front of the lower end of the thigh bone and affording great leverage for the muscles used in swimming and diving, this being specially necessary from the fact that when diving these birds impel themselves by the hind-limbs alone, never making use of their wings when under water after the manner of petrels and auks. The hind border of the breast-bone has only a single notch on each side. The grebes generally lay from three to five eggs in a clutch, which are uniformly coloured and coated with a chalky layer; but the divers lay only two, which are double-spotted. The down-clad young are able to swim as soon as hatched. As regards distribution, the grebes have an almost world-wide range, but the divers, or loons, are restricted to the colder portions of the northern hemisphere.

All the members of the grebe-family, or Podicipedidæ, are easily



MOUNTED IN THE ROWLAND WARD STUDIOS

GREAT CRESTED GREBE (FEMALE IN SUMMER).

recognised by the structure of the foot, in which the three front-toes are furnished with broad lateral lobes of membrane: unlike those of the coots and phalaropes, these lobes are, however, united at the bases and are not contracted at the joints of the toes. The outermost of the three front-toes is the longest, and the hind-toe, which has small lateral folds, is raised above the level of the others; the claws are flattened, so as to resemble nails. Another very characteristic feature of the group is to be found in the rudimentary condition or absence of the tail; and there are twelve primary quills in the wing.

In the skeleton it may be noticed that the lower jaw is not produced backwards behind its articulation with the skull. As regards general habits, it may be mentioned that all these birds are essentially aquatic and, in summer at least, frequent freshwaters, although in winter they may resort to the coast. Their nests are floating masses of herbage generally placed among reeds; and their eggs are pale blue in colour, overlain by a white chalky coat, which becomes more or less completely worn off during the process of incubation. Unlike most birds, grebes do not swallow stones for the purpose of grinding their food as it passes through the gizzard; on the other hand, they have the remarkable habit of eating their own feathers, which when swallowed are supposed to perform the function discharged in other birds by the gizzard-stones.

Although by some authorities the British representatives of the group are distributed under five distinct generic heads, we may follow the older course of including the whole of them in the original genus *Podiceps*, of which, as already stated, the little grebe, or dabchick, is the type. In this extended sense the genus *Podiceps* will be characterised by the compressed and sharply pointed beak, with the oblong nostrils placed near its base; the short wings; the rudimentary tail, composed of short downy feathers; and the highly compressed shank of the leg, which is covered with large shield-like horny plates in front and serrated behind. As all who have seen a dabchick (and who has not?) are aware, the grebes are expert divers and excellent swimmers, and always endeavour to escape pursuit by resorting to the former method of progression, coming up to the surface after some distance, and then disappearing again, and repeating the manœuvre until they reach the shelter of reeds or other water-plants. On land, to which they resort but seldom, they are, however, poor performers, walking badly with an ungainly movement. The shortness of their wings causes them to rise from the water with a certain amount of difficulty; but once under way they fly, for the most part, with considerable strength

and swiftness, many of them being migratory in their habits. In all cases the chicks are marked by light and dark longitudinal stripes, as in the game-birds and ostriches. The genus contains a large number of species, with a collectively world-wide range.

The great grebe, as this species may be called for shortness, together with its red-necked cousin, is specially characterised by the proportionately long beak, which exceeds the length of the inner toe and its claw. On this account it has been made the type of a genus, under the name of *Lophæthya cristata*. In addition to being the largest member of the group—with a length of about 21 inches in the male—the species is characterised in summer by the presence of a pair of large erectile ear-like tufts at the back of the head, and of a fringe-like gorget surrounding the greater part of the neck. In colour, the crown of the head, the ear-like tufts, the back of the neck, and the upper-parts generally are dark blackish brown; the frill is chestnut at the base, shading into the former colour near the tip; the marginal wing-coverts and the inner sides of the secondary quills are white; the flanks dusky, with a brightening tinge of chestnut; the sides of the face, the throat, the front portion of the neck, and the breast of the well-known shimmering satin-like white; the beak is red at the base passing into dun-colour; and the eye is crimson. In winter the head-tufts and frill are discarded.¹ Young birds resemble the adults in winter-dress, with the exception that the eye is straw-coloured. The chick while in down is striped with black and white above, but is wholly white below, while the crown of the head is ornamented with a brilliant vermilion heart-shaped patch of bare skin. It would be interesting to know the purpose of the latter feature.

Apparently this bird is the true grebe, the name, which in the twelfth century was spelt *grib*, being derived, it is believed, from the same root as the Cornish *crib* and the Welsh *criban*, meaning a comb or a crest, and referring, of course, to the ear-tufts of the present species. The range of the great crested grebe is very extensive, including the temperate regions of Europe, Asia, Africa, and Australia. To northern India it is chiefly a winter-visitor, although it has been occasionally found nesting there, as also in Kashmir. The normal breeding-range includes the greater part of Europe as far north as Denmark and the south of Sweden, and thence eastwards across Siberia to China and Japan, while to the southward it embraces Australia and New Zealand. The African form, which has been separated as a distinct species,

¹ In the last edition of *Yarrell's British Birds*, vol. iv. p. 123, it is stated that these appendages are persistent.

cannot well be regarded as more than a local race. Wherever in the British Isles large inland reedy pools or lakes occur, there may the great grebe be expected to be found if the locality be sufficiently quiet and free from molestation. Indeed, the bird is much less uncommon in the south of England than was at one time supposed to be the case, and has even bred for several years in succession in Richmond Park, while in the Duke of Bedford's park at Woburn it constantly nests within sight of the house. The Norfolk Broads, where the bird is mis-called loon, are perhaps its chief haunts at the present, although it was formerly abundant in the Lincolnshire fens, and is still met with in some numbers on the Cheshire and Shropshire meres. Many Irish and Scotch lakes afford favourite breeding-places for this beautiful, although shy and timid bird, but the breeding-range is not known to extend northward of the Clyde valley. The Scotch birds, and probably many of those inhabiting the north of England, migrate southwards in winter; and it is probably these, reinforced perhaps by wanderers from the Continent, that are to be seen on our southern coasts at this season. Although on the lakes of Great Britain and Ireland it is rare to see more than two or three pairs of these birds in the same locality, in many parts of the Continent large colonies are found breeding in company, each pair keeping, however, more or less to themselves. Grebes feed on small fishes, frogs, water-beetles and other aquatic insects, crustaceans, and snails, but also consume a certain amount of vegetable substances in addition, as already mentioned, to their own shed feathers. Generally a silent bird, the grebe when alarmed utters a double note which has been likened to the syllables *kek-kek*; but during the breeding-season it has a special harsh croaking cry.



FOOT OF GREAT GREBE.

Like that of other members of its tribe, the nest of the great grebe is a floating mass of vegetable matter, in this instance of large size, which in some cases may be found among reeds at a considerable distance from the bank of the lake or pool in which it is situated. In this are laid, during the latter half of May or early in June, the three or four

greenish-white eggs, invested at first in the usual chalky coating ; the length of these varying from about 2 to 2 $\frac{3}{4}$ inches. When the whole clutch (usually four) is laid and the hen begins to sit, she carefully covers the eggs with weeds or other vegetable substance every time she leaves the nest, this being done apparently for the purpose of keeping them warm. Were it for concealment, the process would commence as soon as the first egg was laid ; but, as has been well remarked, white eggs are very inconspicuous among the lights and shadows of a reed-brake. Although they will at other times readily take wing, when their nest is approached these grebes always endeavour to escape, and perhaps to distract attention from their nursery, by swimming away rapidly, and then diving. If the nest be robbed, the hen will frequently resume laying. Both birds are exceedingly attentive parents, feeding their young with small eels and other food suited to the calibre of their gullets, and, it is said, instructing them in the art of diving by taking them below the surface carefully ensconced beneath their own wings.

Red-necked Grebe In the red-necked grebe the length of the beak is
 (Podiceps even proportionately greater than in the larger
 griseigena). species, so that the species is included by some
 writers in the same genus, under the name of
Lophethya griseigena, in place of being designated by the title here
 used. It has also ornamental head-plumes in summer, which chiefly
 take the form of a pair of shortish tufts on the crown of the head ; the
 throat-frill being inconspicuous. In size the cock is about equal to the
 hen of the great crested species, its total length being approximately
 18 inches. Apart from these features, the species is easily recognised
 by the distinctive colouring from which it takes its popular and scien-
 tific names, the one referring to the chestnut neck and the other to
 the pearl-grey cheeks. With a beak orange at the base and blackish
 elsewhere, the bird in summer-costume is characterised by the
 blackish-brown crown of the head, head-tufts, the back of the neck, and
 the upper-parts generally ; in striking contrast to which are the pearl-
 grey of the cheek and the bright chestnut of the sides of the neck,
 continued for some distance as a stripe along each flank ; the sides and
 breast being ashy grey with dusky mottlings. In winter the head-
 ornaments disappear ; the colour of the upper-parts changes to greyish
 brown ; while the face, the fore part of the neck, and the breast
 assume that shimmering satin-like whiteness which causes this part
 of the plumage of both the present species and its larger cousin to
 be so much sought after for trimmings and other portions of ladies'

costume. Immature birds have a plumage like the winter-dress of their parents. Dark brown striped with white on the head and neck and with much lighter brown on the back is the distinctive livery of the young in down, whose under-parts are white with dark brown flecks and streaks on the throat.

Considering that it breeds in the south of Norway, the Baltic, and the north of Germany, it is somewhat surprising to find that this species is not known to nest in the more northern districts of the British Isles. Nevertheless, such is the case, and to stay-at-home Englishmen this bird is chiefly known, in the living condition, as a winter-visitor to the eastern coast of England and Scotland, from which it usually, although not invariably, takes its departure before the assumption of its brilliant breeding-livery. Generally it is far from common even on the east coast, but in one January nearly thirty were taken off Scarborough. Although reported to be not unfrequently seen in Cornwall, on the west coast of the mainland it is always a rare bird, while in Ireland only a few examples have been recorded, and these from the southern and eastern coasts. From the south of Norway, the Baltic, and northern Germany the breeding-



MOUNTED IN THE ROWLAND WARD STUDIOS

RED-NECKED GREBE.

range of this handsome grebe stretches eastward across Russia to the Caspian and Black Seas and thence into Turkestan, and possibly somewhat farther in the same direction. In Manchuria and Japan, and thence to Greenland and North America generally is found, however, a grebe which, while slightly larger, is very closely allied to the red-necked species, although it has received from ornithologists a distinctive title of its own. Whether there be one or two species is immaterial, the main fact being that grebes of the red-necked type have a circumpolar distribution. Practically the habits of this grebe are identical with those of its larger relative, and therefore need no special mention. The length of the egg varies from a fifteenth less to a fifteenth more than 2 inches.

Sclavonian Grebe (*Podiceps auritus*). Like the preceding representative of the group, the horned or Sclavonian grebe is only a winter-visitor to the British Islands, where, however, it is a far less uncommon bird, being, in fact, on the east coast of England and in Scotland the most abundant of all the larger grebes at that season. On account of the relatively stouter and shorter beak, which is inferior in length to the inner toe and its claw, this grebe is sometimes made the type of a genus distinct from the one in which the two preceding species are placed under the name of *Dytes auritus*; but little seems to be gained by such refinements in classification and consequent complexity in nomenclature. The species is further characterised by the great development of the ornamental plumes on the head in the summer-costume, the throat carrying two lappet-like appendages, while the head is surmounted by a pair of longitudinal crests. The bird is also smaller than either of the two last, measuring only 13 inches in length. In summer the crown of the head and back of the neck are black, but from the base of the beak



MOUNTED IN THE ROWLAND WARD STUDIOS

SCLAVONIAN GREBE.

to the eye and thence backwards in the shape of a broad band the feathers forming the aforesaid crests are yellowish chestnut; the sides of the face and throat are rich dark brown, this colour including the elongated feathers of the lappet-like ruff; the front of the neck is chestnut; the upper surface of the body dark brown, with the secondary quills white; while the under-parts are white with the usual satin-like sheen, and the flanks dark brown blended with chestnut. In winter the head-crests and ruff disappear, the upper portion of the head becomes dusky, the back of the neck and the upper surface of the body

are dark brown, and the rest of the plumage is white. At all seasons the beak has a crimson tip and the eye is also of that colour. Immature birds resemble the adults in their winter-costume, with the exception that the chicks are of a duller white and the flanks and under-parts browner. The longitudinal stripes on the upper-parts of the downy chick are black and white; the under surface of the bird at this age being wholly white.

The Slavonian grebe nests in higher latitudes than either of the preceding species, its breeding-range extending from Iceland across northern Europe, where it reaches as far south as Denmark and Siberia, and thence eastward across Canada; but in Denmark the species nests comparatively seldom. The winter-range of this bird includes the south of Europe and the Mediterranean basin generally, and in America extends as far south as Bermuda, although but few individuals reach the latter islands. On the east coast of England and on both sides of Scotland this bird, as already mentioned, is far from uncommon, and it is by no means rare on the north and north-western shores of Ireland; but on the other portions of the Irish coast, as well as on the western side of England, it is but seldom seen. From 12 to 13½ ozs. is the weight of this bird, against from 2 lbs. 12 ozs. to 3 lbs. in the case of the great grebe.

From the accounts of those who have observed this grebe in its Icelandic and other breeding-haunts, nothing specially noteworthy appears to exist in regard to its mode of life, which is generally similar to that of the other species. It may be mentioned, however, that on one occasion when an observer was watching a female sitting on its nest, its partner endeavoured to frighten him away by rising on a sudden from the water just in advance, splashing with its feet, and crying loudly, the female also joining in the outcry. Indeed, so persistent and aggressive was the bird that it actually permitted itself to be taken in a butterfly-net. The eggs, of which there are generally from two to four in a clutch, although occasionally, it is said, the number may reach five, measure between just over 1½ and a little short of 2 inches in length, and are indistinguishable from those of other species with the same approximate dimensions.

Black-necked Grebe (*Podiceps nigricollis*). From the fact that the beak shows a slight tendency to an upward inclination, coupled with the somewhat hairy appearance presented by the tufts on the head, which are situated in the neighbourhood of the ear-holes, the black-necked or eared grebe has been made the

type of a third genus, with the designation *Proctopus nigricollis*; but here again we may be content to follow the older fashion and retain the species in the original *Podiceps*. Special interest attaches to this grebe from the fact that it has only recently been definitely proved to be a British-breeding species. More than a century ago, for instance, it was stated by a famous English naturalist to nest near Spalding, and in the latter half of last century an adult in breeding-plumage with a couple of downy chicks was offered to another bird-lover by a Norfolk marshman. But it was not till June 1904 that nests were actually found with eggs and young in Great Britain.¹ For obvious reasons the locality where this interesting discovery was made was not revealed; but it was perhaps somewhere in Scotland, since the writer has been informed that other nests of the species were detected in that part of the kingdom during the same year.

Unlike the Slavonian grebe, this species nests in the south of Europe and Africa, and such individuals as reach the British Islands consequently generally arrive in spring, and either pass on or spend the summer (instead of the winter) among us. The British Islands do not, however, by any means mark the extreme northward range of the species, since stragglers have been seen in Iceland, and it is reported to breed occasionally in Denmark. Southward its breeding-range extends not only to the Mediterranean countries and North Africa (where it is excessively abundant), but likewise to Abyssinia, the Transvaal, and Cape Colony; farther east it seems, however, to be only a winter-visitor to north-western India and the neighbouring coasts, where it is common in the neighbourhood of Karachi and



MOUNTED IN THE HOWLAND WARD STUDIOS

BLACK-NECKED GREBE.

¹ See O. V. Aplin, *Zoologist*, ser. 4, vol. viii. p. 477 (1904).

Mekran. On the Sind coast it frequents the sea in place of inland waters. In Ireland it is very rare.

In addition to the features already noticed, the black-necked grebe in its summer-plumage is characterised by the dark golden yellow of the long hair-like ear-coverts, from which it derives its name of eared grebe; the black feathers of the rest of the head and the neck; the dark brown upper-parts, with the inner primary and the secondary quills, except the inner ones, white; the black mingled with red of the flanks; the silvery white under-parts; and the wholly black beak. In winter the species closely resembles the Slavonian grebe at the same season; from which it may, however, be distinguished at all seasons and ages by the white on the primaries and the upward inclination of the beak. The length of the adult is from 12 to 13 inches. Young birds are indistinguishable, so far as colour is concerned, from their parents in winter-dress. In the downy chick the longitudinal stripes on the head and back are brown and black, while the under-parts are white.

The habits of this grebe are much the same as those of the other members of the group. It may be noted, however, that the nest (like that of the Slavonian grebe) is sometimes fixed; being in the case of this species on some occasions supported on a solid foundation built up from the bottom to a height of a yard or more, so as to reach the surface of the water. Although in some places formed of the usual decomposing reeds or rushes, in Denmark it has been found built chiefly of moss, the material with which most grebes seem to cover their eggs when leaving their nests. The eggs vary in number from two to five, and are practically identical with those of the Slavonian species: they may apparently be immersed in water during the process of incubation without the slightest harm to their fertility.

Dabchick
(*Podiceps*
fluviatilis).

Although less abundant than formerly in the Thames and its tributaries, the dabchick, or little grebe, is by far the commonest representative of the group in the British Isles, where it is resident on freshwaters throughout the year. During the cold months of the year it is most commonly to be seen on small streams, where the water generally remains open, but at other seasons it may be observed on rivers, lakes, and ponds, wherever there is sufficient covert of reeds or rushes to suit its habits. At times a pair may take up their quarters on some pool, not much larger than a good-sized bath, by the side of a railway, where

they swim and dive quite heedless of passing trains in their usual self-possessed manner ; and the species is not unknown on the ornamental waters of the London parks. Diving is, perhaps, the most characteristic trait in the habits of these pretty little water-birds ; and the name dabchick appears to be a derivative from the same root as the word "dip."

Dabchicks form an extensive sub-group of grebes represented by species ranging over the whole of the northern hemisphere, and likewise occurring in South Africa and Australia ; and it is not a little noteworthy that in the latter country we may find such an essentially European type swimming side by side with that strangest of all mammals, the exclusively antipodean duck-billed platypus. All the dabchicks are small birds (the present species not exceeding $9\frac{1}{2}$ inches in length and 10 ozs. in weight), and are further characterised by the relative shortness of the shank, or lower segment of the leg, which is inferior in length to the middle front toe with its claw, and the absence of head-crests. In summer-plumage the crown of the head, the back of the neck, and the upper-parts generally, together with the lower portion of the neck and the sides of the body of the European dabchick, are dark brown ; the cheeks, throat, and the front of the neck dark chestnut-red, or rusty ; and the breast white, strongly tinged with dark grey. In winter the whole plumage assumes a paler tint, especially on the breast, while the chestnut-red of the neck vanishes, and the chin becomes white instead of black. In this condition the adults, so far as colouring is concerned, are indistinguishable from birds of the year. The chick, in this respect, is practically a miniature of the great grebe, although somewhat darker in tone, and without the bare red patch on the crown of the head.

The geographical range of the dabchick includes the greater portion of the temperate regions of Europe and Asia, not excepting Japan, as far north in Scandinavia as latitude 62° ; while southwards it embraces Northern Africa and Asia Minor. In Asia the Himalaya and its eastward continuation form an impassable barrier to the species,



MOUNTED IN THE ROWLAND WARD STUDIOS

DABCHICK.

which is replaced in India by the white-winged *P. albipennis*, and in China by a species common to the Philippines.

Throughout the British Islands the dabchick is a common bird in localities suited to its habits, although it is less abundant in Scotland than in England or Ireland. So much has been written about its habits, which are familiar to all residents in the country, that a very brief notice will suffice on this occasion. It may be seen either in pairs, singly, or in small parties on all inland waters, swimming contentedly about, and diving from time to time in search of food, which comprises water-snails, freshwater shrimps, insects, small fishes, and tadpoles. The nest, with its clutch of from four to six eggs, may be found as early as the last week in March; and after the first brood of young are old enough to shift for themselves, or even before this, the industrious parents not unfrequently set about bringing a second family into the world. Very attentive, too, are the parents to the needs of their eggs and offspring, the female carefully covering up the former with water-weeds every time she leaves the nest, while later on she will carry her young on her own back until they are quite at home in the water. In one instance, at any rate, it has been observed that while the male took charge of the nearly full-grown young, his partner was sitting on a second clutch of eggs. Like the moorhen, the dabchick can remain a long time under water, and when hard pressed will conceal itself beneath the surface among the weeds. The nest may be either freely floating among rushes, or, when in shallow water, anchored to the bottom by a foundation of weeds and mud. When fresh-laid, the eggs are pure bluish white, but during incubation they become so much stained that they are generally of a pale dirty yellow by the time the young are ready to chip the shell; while on the borders of Scotch lochs they are generally dyed brown by the peat-stained water.

It may be added that in some ornithological works, the writers of which do not include all the grebes in a single genus, and do not recognise the dabchick as the typical representative of the genus *Podiceps*, the species will be found described under the name of *Tachybaptus fluviatilis*.

In concluding this notice of the grebe tribe it may be mentioned that a specimen of the American grebe, known as *Podilymbus podiceps*, has been alleged to have been taken in the neighbourhood of Weymouth, but doubts have been expressed as to its authenticity.¹

¹ See Mansel-Pleydell, *Birds of Dorset*, p. 124 (1892).

**Great Northern
Diver (*Colymbus
glacialis*).**

The handsome and exclusively aquatic birds known as divers, or loons, are, as already mentioned, classed by some ornithologists as a separate order, although they are here regarded as constituting merely a family—the *Colymbidæ*—of the *Pygopodes*. From the grebes these birds are broadly distinguished by their fully webbed feet, in which the hind-toe is situated in the same horizontal plane as the front ones; and likewise by the presence of a short although distinct tail. Owing to the extreme backward position of their legs, grebes, like divers, walk with difficulty; and the latter often merely shuffle to and from their nests on their breasts with the aid of their hind-limbs. Indeed, except to reach their nests, which are never more than a few yards



A PAIR OF GREAT NORTHERN DIVERS.
(From a specimen in the British Museum.)

away from the margin of the water, divers never go on land at all, although they are able to fly well and strongly, and make migrations of considerable length. All are natives of the colder portions of the northern hemisphere; and none come farther south in winter than the Mediterranean. As all the members of the group are included in the single genus *Colymbus*, it will suffice to refer to the distinctive characteristics of the individual species.

The great northern diver, or loon, is the largest representative of the whole group, attaining in some instances a length of as much as 32 inches, and weighing at least as much as from 9 to 12 lbs. As regards plumage, it is distinguished in summer by the greenish-black head and neck, marked by a pair of large wedge-shaped patches of white streaked with vertical black lines near the base of the neck,

and a smaller patch of the same description below the throat; the base of the neck is striped on each side with black and white; the upper-parts show white spots on a black ground, these spots in the region of the shoulder being large, squared, and arranged in transverse rows, while on the middle of the back they decrease in size, and on the lower portion of the back and the flanks are reduced to mere dots; all the under-parts are pure white. A mottled appearance distinguishes the winter-dress, the feathers of the upper-parts being dusky with broad bluish-grey edges; but the lower portion of the back is uniformly brown; the crown of the head and back of the neck are brown with a greenish sheen; while the sides of the head as well as the under-parts are white. The birds of the year are coloured like their parents in the winter-livery; and the chick when in down is sooty brown above and white beneath. In the adult the beak is wholly black and the eye red.

The geographical distribution of the great northern diver is somewhat peculiar. As its name implies, the bird is a denizen of the high north, breeding in Iceland abundantly, and much more sparingly, it is believed, on the west coast of Scandinavia. In the Baltic, however, it becomes rare, and in place of extending across Russia into northern Asia, as might have been expected, it is replaced to the eastward of the White Sea, or thereabouts, by the somewhat smaller but closely allied white-billed diver (*Colymbus adamsi*), distinguished, in the adult condition, by the feature from which it takes its name. On the other hand, the species may be traced westwards from Iceland into Greenland, and thus to the mainland of North America, across which it extends, ranging from about the 70th degree of latitude southwards to the latitude of Connecticut. To the British Isles the loon is mainly a winter-visitor, chiefly frequenting the coasts, although occasionally making its appearance on inland waters, and often remaining for as much as five or six months. Sometimes, however, it lingers on, even in the more southerly districts, till well into the summer, adults in breeding-plumage having been captured off Belfast in June; and in the Hebrides it may be seen for the greater part of the year. Although a regular visitor to the F  roes, it does not appear to breed there; and there is at present no absolutely conclusive evidence that it nests anywhere in the British Islands, although there is a strong presumption that it has once done so in Scotland, while it is highly probable that it may do so from time to time in the Shetlands and Orkneys. In 1903 it was recorded from the Island of Coll in July. In some seasons these divers are unusually numerous on the British coasts, on one occasion in winter something like thirty having been seen in Plymouth Sound.

The range of the species extends in winter to the elevated lakes of Mexico on the American side of the Atlantic, and in Europe to the Mediterranean and, it is said, Madeira.

Like the salmon, the loon leaves the sea, which forms its home for the rest of the year, at the commencement of the breeding-season to hatch its eggs and rear its young in the neighbourhood of inland freshwaters. Unlike the aforesaid fish, the diver does not, however, by any means abstain from food when on freshwater, and at all seasons consumes large quantities of fishes, as well as crayfish and other crustaceans. As previously mentioned, these birds when under water propel themselves entirely by means of their hind-limbs, and the pace at which they then progress, and the long time they can remain below are little short of marvellous. Such a great unwieldy bird can naturally rise from the water only with difficulty, as its wings are relatively short, and it generally seeks safety by diving. It has been known, however, to take flight (with the usual flapping along the water at starting) immediately upon being fired at; while more commonly it will take wing after coming up from a dive, the impetus thus gained perhaps aiding it to commence its flight. Divers are not infrequently caught in fishing-nets, into the meshes of which they drive their heads and necks; while they are likewise from time to time taken on baited hooks. Their cry has been compared to the bark of a small dog. Unlike some of its kindred, the great northern diver apparently always lays on land, the nest being a rude structure of grass, flags, etc., situated a short distance from the water's edge, to which a regular path is soon made by the birds pushing themselves along in their own peculiar fashion, with the breast on the ground. The speed and silence with which the sitting hen will thus glide into the water are not a little remarkable. The two eggs, which measure from a little over 3 to nearly 4 inches in their longer diameter, display black spots of variable size, with indistinct underlying markings of dark grey, upon an olive-brown or chocolate-brown ground.

Of the aforesaid white-billed diver (*C. adamsi*) a specimen was killed in Northumberland at some unknown date, a second was obtained at Pakenham, in Suffolk, in 1852, a third at Loch Fyne in 1893, and there is a fourth in the collection of British birds at the Booth Museum, Brighton. The beak is dirty yellow rather than white.

**Black-throated
Diver**
(*Colymbus
arcticus*).

The black-throated diver is a decidedly smaller bird than the last, measuring only 27 inches in total length ; but has the same general type of colouring, although lacking the distinct white band with black lines on the back and sides of the neck in the summer-dress, and with the white spangling of the upper-parts divided into separate areas. Among the distinctive features of the summer-plumage may be mentioned the smoky grey hue of the head and neck,



MOUNTED IN THE ROWLAND WARD STUDIOS

BLACK-THROATED DIVER.

and the purplish-black patch extending from the throat down the front of the neck to terminate in a V-shaped patch, broken on each side of the throat by a much smaller patch of white vertically streaked with black. Behind and below the dark area the sides and base of the neck are streaked with narrow black and white lines ; the back and wings are glossy black speckled between the shoulders with quadrangular white spots arranged in ladder-fashion, and

on the scapulars with transverse rows of larger spots ; the wings are marked by white flecks ; and the flanks are black, and the rest of the under-parts white. In winter the upper-parts become ashy brown, while the throat and front of the neck assume the same pure white hue as that of the lower surface of the body. With the exception that the feathers of the back and wing-coverts have grey edges, the plumage of the birds of the year resembles the winter-dress of the adults. The long down of the chick, as in the case of the larger species, is smoky brown above and white below. From 5 to 7 lbs., or not much more than half that of its larger relative, is the weight of this species. In

winter-plumage the bird is much like the great northern diver, from the female of which it may be distinguished by its shorter beak.

A far less common visitor to the British Isles than either the great or the under-mentioned red-throated species, and seldom seen so far south as the English Channel, the black-throated diver has been generally regarded as having a circumpolar distribution, although of late years the tendency has been to distinguish its Japanese and American representative as *C. pacificus*. If this view be admitted, the breeding-range of the present bird will be restricted to northern Europe and continental northern Asia, and the limits of its winter-range to the Mediterranean, the Black, and the Caspian Seas. Somewhat curiously, this species seems to be unknown in Iceland, although it breeds not only in Scandinavia, but likewise in the Orkneys, the Outer Hebrides, and parts of Scotland, especially Sutherlandshire, Caithness, Invernessshire, Perthshire, Ross, and Argyllshire. For a long time it was supposed to be unknown in the Shetlands, but it is now ascertained to occur in those islands, although it does not appear to nest there. To the rest of the British Islands the black-throated diver is only an occasional winter-visitor, generally represented by birds of the year. Up to the close of the last century only about five-and-twenty individuals had been recorded from Ireland.

Practically, the habits of this species are identical with those of its larger cousin ; but it is stated to be peculiar in that all the flight-feathers are shed simultaneously, so that during the summer-moult at least the bird is for a time utterly incapable of flying. Sometimes the nest is built in the water, and then consists of dried grass, together with reeds and other water-plants ; but the eggs may be deposited on land, where they are laid merely on a little carpet of green reeds without anything that can be called a nest. In size the larger specimens of the eggs of this species exceed the smaller ones of the great northern diver, so that the distinction depends upon colouring. The ground-colour in those of the present species is olive-brown or clay-brown, sometimes dark and sometimes light ; and the deep-seated markings are black and almost indistinguishable from the superficial spots. Like the other members of the group, this diver is an exceedingly shy and wary bird, which is very difficult to approach within gunshot range ; the sportsman's difficulty in this respect being increased by the circumstance that when approached these birds swim very low in the water, submerging the base of the neck, and thus offering a very small mark.

Red-throated Diver
(*Colymbus*
septentrionalis).

It is a matter for regret, as being liable to lead to confusion, that while the largest representative of the present group is known as the northern diver, the Latin title of the smallest species should be a translation of that name. This smallest and last British representative of the group is the red-throated diver, a species not much exceeding a couple of feet in length and not weighing more than about $4\frac{1}{2}$ lbs. It derives its popular designation from the presence in the summer-dress of a large triangular patch of bright chestnut on the front of the

neck. When in this summer-livery the bird has the crown of the head, the cheeks, and the sides of the neck uniformly slaty grey; the nape and the rest of the back of the neck, as well as the sides of the base of the latter, black glossed with green and streaked with distinct white lines; the rest of the plumage of the upper-parts and flanks being dusky, and that of the lower surface of the body white. With the assumption of the winter-livery the upper-parts become



MOUNTED IN THE ROWLAND WARD STUDIOS

RED-THROATED DIVER.

dull slaty grey thickly speckled with white, and the fore part of the neck turns white like the under surface of the body. With the exception that the feathers of the back and wings show white edges rather than white spots, the plumage of birds of the year is like that of the adults in winter. Sooty brown is the prevalent tint of the down of the chick, although this becomes somewhat paler on the lower side of the body.

The breeding-range of the red-throated diver includes the northern portions of both hemispheres up to about latitude 82° , and extends to the Orkneys, Shetlands, Hebrides, and the northern districts of the Scotch mainland as far as Argyllshire, together with one district in the north of Ireland, where, however, incessant persecution seems to have made the birds forsake the locality as a nesting-resort in the year 1896. On its southern winter-migration this species visits the greater portion

of the coasts of the United States, and in the eastern hemisphere it may be seen on the Mediterranean, Caspian, and Black Seas, while it reappears on the Chinese and Japanese coasts.

The one noticeable feature in the habits of this diver appears to be that during the breeding-season in the north of Scotland it frequents only small pools, devoid of trout, for nesting purposes, and consequently has to visit lakes of considerable size, which may be some distance away, in order to procure food. It is also stated that on one occasion a pair of these birds is believed to have nested among heather a considerable distance away from water; if the story be correct, it has to be explained how they managed to alight on, and rise from the ground. Although a sparse layer of sedge or moss may sometimes be provided, the two eggs are laid, as a rule, on the bare ground. The chocolate-brown ground-colour of these eggs is sometimes so dark as to render the black markings, of which the superficial ones may take the form either of large spots (occasionally passing into blotches) or small speckles, almost invisible.

Heron
(*Ardea cinerea*). By the older naturalists the herons, bitterns, storks, spoonbills, and ibises were classed with the rails, cranes, and plovers under the collective name of Grallatores, or waders; but the five former groups are now known to differ in so many important characters from the two latter, that they are universally regarded as a distinct order, for which the name Herodiones seems the most appropriate. In the structure of the bony palate of the skull, which is of the bridged or closed type, instead of the slit or open type, the Herodiones differ widely from the Limicolæ, Grallæ, and all the groups hitherto described, and agree with the flamingoes, ducks, cormorants, etc., to which they are probably more nearly related. Another important difference from the cranes, rails, and plovers is the helpless condition of the downy nestlings when first hatched, so that they have to be tended for a considerable period by their parents before they are capable of taking care of themselves. Several anatomical characters are distinctive of the group; but it must suffice to mention here that the blind appendages (cæca) of the intestine are rudimentary, the nostrils are pervious, the oil-gland is tufted, and, except in some of the storks, the feathers are furnished with after-shafts. With the exception of some kinds of herons, the lower end of the second segment of the leg is bare; and in all cases the hind-toe is well developed and placed in the same horizontal plane as the front-toes. All the members of the group are long-beaked, long-necked, long-

HERON TRIBE

legged, and long-toed birds which frequent marshes, and most of them build large stick-nests in trees, although the bitterns nest in swamps. In the British representatives of the group the eggs, which are for the most part uniformly coloured, generally vary in number from 3 to 4 or 5.

The heron is the typical representative of the family Ardeidæ, which also includes the bitterns, and is characterised by the following features :—The nostrils are situated in grooves on the side of the beak,



MOUNTED IN THE ROWLAND WARD STUDIOS

HERON.

and their apertures in the dry skull are of the oval type ; the bare area in the spinal region extends far up on the neck ; so-called powder-down patches formed of peculiarly brittle or crumbling down-feathers occur on the sides of the rump and breast ; the long outer and middle front-toes are connected together at the base by a short web, and the under side of the middle toe has a comb-like structure. The hind end of the lower jaw is not produced backwards beyond its point of articulation with the skull. The family, which includes several genera, is widely distributed. Except the

bitterns, few members of the group are truly migratory birds. As a rule, herons and their relatives when in flight keep the neck bent back in an S-like curve, so that the head becomes situated between the shoulders ; this posture being often also assumed when sitting.

The true herons, or those included in the typical genus *Ardea*, are characterised by having twelve feathers in the tail, by the large amount of the lower end of the second segment of the leg which is devoid of feathers, the length of this bare area exceeding that of the inner toe and its claw, by the colour of the plumage being uniformly grey above and variegated below, and by the great length of the

nearly straight beak, of which the edges are slightly serrated near the tip. In the possession of a crest on the crown of the head, the true herons resemble the members of some of the other groups. From all other members of the group the heron, *par excellence*, often designated the common heron, may be distinguished by the middle toe and its claw being shorter than the shank or first segment of the leg, by the crown of the head being white in the adult (grey in the young), and the black crest. The only bird with which in this country it could possibly be confounded would be the rare purple heron. No seasonal change of plumage takes place in this well-known bird, which is consequently of the same colour at all times of the year. To describe such a familiar and unmistakable species may appear almost waste of space; but for the sake of uniformity it seems preferable that something should be mentioned with regard to its colouring. In adults, then, the general tone of the upper-parts is clear French grey, except for the white forehead and cheeks, the bluish-black crest and band above the eye, the black quills, shoulder-patch, and flank-stripe, the black-streaked white front of the neck, and the pure white under-parts. In addition to the two streamer-like feathers forming the head-crest, there is considerable lengthening of the plumage at the base of the neck, and also in the scapular and inner secondary regions. A fine cock heron will measure just a yard in length; but when he is put in the scales he is a disappointing bird, being little more than a walking skeleton, weighing only from about 5 to $5\frac{1}{2}$ lbs. when adult, while a full-grown young will scale not more than between 3 and $3\frac{1}{2}$ lbs. The hen is somewhat inferior both in size and weight to her partner, and has also a rather shorter crest. In birds of the year the crest is still shorter, and the long plumes at the base of the neck are lacking; while the general tone of the whole plumage is duller, with a slight tinge of brown on the upper-parts. The nestling is a curious-looking fluffy object, scantily clothed with long hair-like yellow down.

The range of the heron is very extensive, comprising the greater part of the Old World, and the breeding-area including Europe and a large portion of Asia south of latitude 60° . Even India and Ceylon come within the limits of the breeding-area; and in Kashmir there are several large heronries in the magnificent plane, or chunar trees which form such a characteristic feature of that beautiful valley. Eastward of India the species becomes, however, rarer, and although not uncommon in Burma, in the Malay Peninsula it appears to be unknown, while only stragglers have been recorded from Borneo and Australia. In winter, herons from the more northern parts of the

range of the species migrate to the Mediterranean countries and South Africa, but instances are not unknown of their breeding in the latter country. With such an extensive range, it is only natural to expect great local variation in the time of the breeding-season, and as a matter of fact this is actually the case. In England and Ireland, for instance, herons return to their old nests as early as January, and, if these require only to be repaired, the eggs are generally laid early in February in Ireland, and early in March in England—sometimes considerably earlier—and the young birds are hatched four weeks later. Very generally a second clutch of eggs is laid—sometimes before the first young ones have departed—but before the end of July the whole business of breeding is finished. On the other hand, in Ceylon the breeding-season lasts from November to March, while in peninsular India it takes place from March to May, but in Sind is deferred till July and August. Why it should be so unusually late in such an intensely hot country as Sind does not appear to have been explained, but it may be that it depends upon the rainy season.

Although it has only once been recorded (1904) as breeding in the Outer Hebrides, almost throughout the British Islands the heron is a resident species, and for the greater part of the year is more or less solitary in its habits, but in the breeding-season generally collects in large colonies, although sometimes only a few pairs nest in company. The patient watching of a solitary heron standing mid-leg deep in the water of some quiet stream awaiting its prey is too well known to need more than passing mention; and although such a sight is now rarely seen in many parts of England, there are other districts where it is happily common enough. Indeed, despite the persecution to which these birds are subject at the hand of the irresponsible gunner, it is satisfactory to learn that the number of British heronries is increasing instead of diminishing. As there are several works in which more or less nearly complete lists of these heronries are given, it will suffice to state that the number is very great in England, although in Scotland there are comparatively few of any size; Ireland, however, has a large list. The female repairs or builds the nest with the sticks brought by her mate, and also takes the greater part of the duty of incubation, although relieved at times by her mate; the celerity and stillness with which the two birds change places on such occasions being very noteworthy. Generally heronries are built in tall trees; but on an island off the west coast of Scotland herons have been observed, from force of circumstances, to construct their nests on low hawthorn bushes. Herons have also been observed elsewhere in Great

Britain to nest in low bushes ; while in California a colony of blue herons (*A. herodias*) build on the ground in a swamp. In Great Britain there are usually three or four, but occasionally five of the bluish-white eggs laid in a clutch, but in India the number is generally only three ; in length the eggs vary from rather less than $2\frac{1}{4}$ to $2\frac{3}{4}$ inches in length. Herons fly heavily, with the head and neck bent back in the manner referred to above, uttering from time to time their well-known harsh "cronk," which may also be heard when the bird is at rest. In search of the frogs, fish, and water-rats which constitute their chief food, herons frequent rivers, lakes, and marshes ; and although it may be admitted that during the spawning season they do no little harm to salmon and trout fisheries, it is perhaps hardly fair that for such robberies the death-penalty should be exacted. The importance of the heron as a quarry in the old days of falconry needs no more than passing mention. It may be added that, despite their formidable beaks, herons are always mobbed if they venture to approach a rookery ; and in the summer of 1905 an observer records having seen a heron chased by a dozen or so of rooks up and down the outskirts of a wood till it finally retired beaten. Only by dodging and swerving suddenly could the great bird get the least respite from its tormentors ; and when it returned, after a brief rest, to the unequal contest, it was soon completely driven away. A heron with the plumage pale brown and white is exhibited in the Natural History Museum.

Purple Heron A far handsomer bird than its grey relative, which
(*Ardea purpurea*). exceeds it in length only by some three inches,
the purple heron is but a casual visitor to the British Isles, where it mostly occurs in the eastern counties of England, in the form of immature specimens. From its relatively longer toes, the middle one of which, with its claw, is equal in length to the shank of the leg, this bird is sometimes made the type of a distinct genus, under the name of *Phoyx purpureus* ; and although there is considerable justification for this course, it seems on the whole simpler to follow the old plan of including it in the same genus as the grey heron. The true home of the purple heron is central and southern Europe, where it nests as near to England as the marshes of Holland ; and whence it migrates southwards in winter to Africa. Only some fifty examples of this bird are believed to have visited the British Islands during the period in which exact records have been kept ; and of these not more than about half-a-dozen were from Scotland, and only one from Ireland.

In its full breeding-plumage—rarely seen in birds visiting this country—the purple heron has the upper-parts dark slaty grey, with the scapulars and innermost secondary feathers produced into long drooping plumes of chestnut, the crown and the pendent feathers of the nape of the neck glossy black, and the cheeks and sides of the neck chestnut marked by a long black stripe. The fore part of the neck is white streaked with black; the feathers on the front of the



MOUNTED IN THE HOWLAND WARD STUDIOS

PURPLE HERON.

lower portion of the neck form long loose plumes of slaty grey; a patch of maroon-chestnut, from which the bird takes its distinctive name, ornaments each side of the fore part of the breast, the rest of which, like the abdomen, is black. Truly a magnificent combination of colours, which makes one wish this splendid bird were a resident and breeding British species. The hen is a smaller and duller-coloured bird, with a much shorter crest on the nape. When the breeding-season is over both sexes lose the crest which adds so much to the beauty and dignity of their appearance. In young birds, as commonly seen in this country, the feathers of the back and wings have buff borders, and the head-crest and elongated plumes of the back and breast are entirely wanting.

As the nestling and eggs are unknown in this country, it is unnecessary that they should be described, although it may be mentioned that the down of the former is white.

To the eastward the range of the purple heron extends into southwestern Asia, but in India and Burma the species is replaced by the closely allied eastern purple heron (*A. manillensis*), distinguished by the absence of black streaks on the fore part of the neck. Both species are shy skulking birds, much less in evidence than the grey heron, owing to their habit of hiding among tall reeds, or in grass, above which only their long necks and heads are visible, and of feeding to a considerable extent at night. Their breeding-habits are likewise decidedly different from those of the grey heron, the Indian species nesting in thickets or bulrush-brakes, while the European bird prefers to make its nursery among rushes, sometimes close to the bank of the marsh, but on other occasions far out in the water. When flushed, purple herons rise with a loud harsh cry.

In this place may be briefly mentioned three beautiful representatives of the heron tribe so rarely met with in this country that neither of them deserves to be included in the list of truly British birds. The first and



MOUNTED IN THE ROWLAND WARD STUDIOS

GREAT WHITE HERON.

largest of them is the great white heron, *Herodias alba*, representing a genus distinguished from *Ardea* by the wholly white plumage and the relatively short beak, which is considerably inferior in length to the shank of the leg. In size the white heron is approximately the same as the grey heron. The proper home of the species during the breeding-season is the south of Europe and Central Asia. A considerable number of reputed occurrences of this heron in the British Islands during the nineteenth century have been reported; but, according to an ornithologist who made a special investigation of the subject, only five of these can be considered thoroughly authenticated. The first of

these was at Hornsea, Yorkshire, in 1826, the second at Beverley, in the same county, nine years later, the third on the Firth of Forth in 1840, the fourth in Cambridgeshire in 1849, and the fifth at Loch Katrine in 1881. To these may perhaps be added a specimen shot at Osberton, Nottingham, many years ago, and another seen in Yorkshire in 1868.

Of the little egret (*Herodias garzetta*) sixteen individuals appear to have been recorded from the British Islands during the last century, including a specimen in the Chester Museum, killed in 1826; one of these being from Scotland, and two from Ireland. Another example was recorded from Yorkshire in 1901. This bird is much smaller than the great white heron, or larger egret, measuring only about 20 inches in length, and is further distinguished by possessing a head-crest and elongated breast-plumes during the breeding-season; these plumes forming the well-known "ospreys" of the feather-trade. The range of this species (which is referred to in some works under the name of *Ardea garzetta*, and in others as *Garzetta garzetta*) extends from southern Europe and Africa eastwards to India, China, and Japan.



MOUNTED IN THE ROWLAND WARD STUDIOS

LITTLE EGRET.

The last of this trio of rare visitors is the buff-backed heron, or cattle-egret (*Bubulcus russatus*) of southern Europe and Africa, of which one example has been recorded from Devonshire in 1805, a second from Norfolk in 1827, and a third from Devonshire in 1851. The two species of cattle-egrets (the second of which is a familiar Indian bird) differ from the true egrets (*Herodias*) by the shorter beak and leg, the smaller portion of the second segment of the legs devoid of feathers, and, above all, by the assumption of buff, in place of white, hair-like breeding-plumes. Moreover, as implied by the title cattle-egret, these birds differ markedly in their habits from the true egrets. In some works this species is described as *Bubulcus lucidus*, this scientific name being of earlier date than *russatus*.

Squacco Heron
(*Ardeola ralloides*).

The small heron commonly known in Europe by the ugly name of squacco heron belongs to a group of four or five species whose Indian representatives are more euphoniously termed pond-herons. Although only a casual visitor to the British Isles, the squacco has made its appearance there so much more frequently than any of the three species just mentioned, that it seems entitled to a definite place in the list of British birds.

Pond-herons are smaller birds than either true herons or egrets (the present species not exceeding 20 inches in length), and as regards plumage are to a considerable extent intermediate between those two groups. Agreeing in many respects, such as the relative length of the bare part of the leg, with the cattle-egrets, the pond-herons differ from those birds in that the back is coloured at all seasons, and is never wholly buff, and also by the circumstance that the beak is longer (instead of shorter) than the shank of the leg.

In breeding-dress the European pond-heron, or squacco, has the head and neck golden buff; the front feathers of the head-crest are marked with dusky streaks on a white ground, and those behind margined with black; on the neck the long plumes are wholly buff, but on the back the feathers, which are also long and remarkably loose in structure, assume a cinnamon-buff tint, while the wings, tail, and under-parts are of the pure white characteristic of egrets in general. The hen may be recognised by her smaller stature, shorter crest, and less flowing back-plumes. When in their winter-livery both sexes turn earthy brown on the back, and the cock has shorter plumes than when in his full summer-dress. Birds of the year may be distinguished



MOUNTED IN THE ROWLAND WARD STUDIOS

SQUACCO HERON.

from their parents in the winter-costume by the darker brown of the back, the black shafts to the primary quills of the wings, and the broad black shaft-streaks to the feathers of the neck.

It is in this comparatively dull immature or winter livery that most of the examples of the squacco heron recorded as British visitors have been taken ; although there is reason to believe that had they been suffered to live some would have remained till after the assumption of the breeding-costume. Africa is the real home of the squacco, which wanders, however, in summer to the south of Russia and the Caspian basin, while a few individuals reach central Europe, and still fewer the British Islands. The fact that in Africa south of the equator winter corresponds to our summer will probably explain the occurrence of birds in winter-plumage reaching Europe during the summer months. During the nineteenth century about forty-one occurrences of the squacco in the British Isles were chronicled ; of these occurrences seven are from Ireland, while there is only one from Scotland, and one from Orkney. Several examples have been recorded during the present century, including four from Sussex, one from Cornwall (1907), and one from Yorkshire (1902).

Night-Heron
(*Nycticorax*
***griseus*).**

Although there appears to be no actual record that the night-heron (sometimes designated *Nycticorax nycticorax*) has ever bred within the limits of the United Kingdom, some ornithologists are of opinion that it probably did so regularly in former times. Be this as it may, individuals are recorded annually from some part of the country, so that there can be no hesitation in admitting the species to a definite place in the British list. From all the members of the heron tribe hitherto noticed the night-herons (for there are several representatives of the genus, which ranges over the whole of the warmer regions of the world), together with their near relatives the green-herons, differ by having the wings, body, and tail coloured instead of white ; the night-herons being distinguished from the green-herons by having the length of the beak about equal to that of the shank of the leg, and also by the great relative depth of the base of the beak. Other characteristics are to be found in the slender crest, comprising only a few feathers, with which the head is adorned, the shortness and thickness of the neck, the short tail (with the twelve feathers distinctive of the herons generally), and the "squat" build of the entire bird.

The range of this species is very extensive, comprising (in localities suited to its habits) the greater portion of the warmer regions of the

Old World, exclusive of Australasia, and America as far south as Colombia and Ecuador. England, Ireland, and Scotland can alike claim numerous visits of this handsome little heron, which is, however, most commonly seen in the southern counties. In Devon alone no fewer than eight specimens are stated to have been killed in the summer of 1849.

With its green-glossed crown and back, long and drooping white head-crest, ash-grey neck, wings, and tail, white under-parts, crimson



MOUNTED IN THE ROWLAND WARD STUDIOS

NIGHT-HERONS.

eye, and a beak of which the upper half is black and the lower half of the same leaden hue as the bare skin below the eyes, the adult night-heron is a really handsome bird, whose colours harmonise to perfection with its natural surroundings. Both sexes agree in size, having a total length of 23 inches; but the hen is duller in colour, with shorter head-plumes. In young birds the colour of the upper-parts is clove-brown marked by paler spots and streaks, the under-parts are striped with white, buff, and brown, the eye is brown, and there is no crest to the head. In the nestling the bare skin is sea-green, the down purplish grey, tipped on the crown with white, and paler on the under-parts than above.

The present species derives its name from the habit of feeding at

night, the daylight hours being passed in repose. In India these herons may often be seen in considerable numbers roosting during the day in "topes," or clumps, of large trees, such as tamarinds, mangoes, or palms; and flying forth at sunset in search of food, which consists of frogs, fishes, and other creatures found in marshes. On the wing they move with a heavy, lumbering flight, uttering from time to time their monotonous cry of *qwāl*—a cry from which the bird derives its ordinary vernacular name in India. The breeding-colonies of the night-heron are often in close association with those of herons and egrets; the stick-built nests, with their clutches of from four to five pale sea-green eggs being placed in tall trees. In Kashmir these birds breed in April and May, and in Ceylon in March, but in the plains of India the nesting season is deferred till July and August, by which time the periodical rains are in full force. In Europe night-herons spend much of their time skulking in marshes, although their building places are usually in trees.

Incidentally it has been mentioned that the green-herons of the genus *Butorides* differ from the night-herons by the length of the beak exceeding that of the shank of the leg. Of the American little green-heron (*Butorides virescens*) a single example was taken in Cornwall in the autumn of 1889.

Little Bittern The true bitterns differ markedly from the herons (Ardetta minuta) and egrets not only by the circumstance that they have ten, in place of twelve, tail-feathers, but likewise by their colouring, which is mottled black, brown, and buff, of the same general type as that of woodcock and snipe, and obviously adapted for protective resemblance among dry reeds and such-like covert; whereas the green colour of night-herons is for the purpose of rendering the birds inconspicuous among the foliage of the trees in which they roost. The little bitterns, of which there are several species, in respect of colour are in some degree intermediate between the green-herons and night-herons on the one hand and their larger relatives on the other. As implied by their name, they are birds of small relative size; and are specially characterised by the circumstance that the middle toe, with its claw, is not longer than the beak. The sexes differ in plumage; the back of the neck is bare of feathers, and covered only with short down, but this featherless tract is concealed by the long feathers on each side; the head is surmounted by a small crest; and the feathers of the upper part of the breast are so lengthened as to hang over and conceal those on the lower portion of the same.

In the European species the length does not exceed 13 inches ; and the hen falls somewhat short of this. In the cock the crown of the head and the back are greenish black, and the cheeks, neck, wing-coverts and under-parts buff, except for a white patch on the abdomen. Apart from her smaller size, the hen is characterised by the brown tinge on the crown of the head, the rufous cheeks, brown back, brownish-buff wing-coverts, and the black-streaked buff under-parts. Young birds may be distinguished from adult females by the duller tone of their upper-parts, in which the wing-coverts are dark brown with buff edges.

The little bittern ranges over the greater portion of Europe southward of about the sixtieth degree of latitude, whence it visits Africa in winter : eastward its geographical area extends through Central Asia, and thence southwards across the Himalaya into Sind, where, as in Kashmir, it breeds. Occasionally it has been taken in the neighbourhood of Delhi and Etawah. During the summer a certain number of little bitterns visit northern Europe, inclusive of the British Islands, where they

are most commonly observed in the southern and eastern counties of England. This, however, scarcely explains the real state of the case, for there is considerable presumptive evidence that the species occasionally nests in East Anglia, a pair of these birds having been observed in one of the Norfolk Broads during the breeding-season.

That little bitterns might occasionally nest in the alder-swamps of the Norfolk Broads without being detected is indeed quite likely, when the skulking nature of these birds, and the difficulty of examining the covert in these marshes, are taken into consideration. Although generally found amid reeds and rushes, where its protective colouring renders it extremely difficult of detection, the little bittern occasionally prefers to perch on trees ; and both in that situation and when among reeds has the habit, shared by its larger relative, of standing bolt



MOUNTED IN THE ROWLAND WARD STUDIOS

LITTLE BITTERN.

upright with its beak held vertically in the air; such a position rendering it, of course, still more difficult to see amid the vertical stems of reeds and bulrushes. As a rule the nest, which is built of flags or other coarse herbage, is placed among reeds, rushes, or, in India, growing rice; and at the proper season contains from five to nine green-tinged white eggs measuring $1\frac{1}{2}$ inches, or rather less, in their longer diameter.

Bittern
(*Botaurus*
stellaris).

In the old days when the curfew of St. Mary's Church, Cambridge, was rung as a guide to belated travellers in the fens, and Ely was really an island in the midst of an almost impassable and malarious swamp, the booming of the bittern was a familiar sound in spring and summer to all fen-men and wayfarers in the fen-districts. In the fourteenth century we learn indeed from documentary evidence that bitterns commonly nested in the fens around Ely; and on account of the estimation in which these fine birds were held for the table it was a criminal offence to collect and carry their eggs out of the district. Bitterns bred, however, in the fens and in Norfolk to a much later date than this, and a nest was taken on the Cam in 1821, another in the Norfolk Broads about the year 1846, a third on Tring Reservoir in 1849 or 1850, a fourth some years later in Buckinghamshire, and a sixth in Norfolk in 1868, where a nestling was captured the following spring. Nowadays this splendid bird is only a casual visitor to the British Isles in winter and spring; although a considerable flight visited us in the winter of 1904-5, most of the members of which appear to have met the fate commonly accorded to such claimants to British hospitality and protection. Sooner or later it must, indeed, we fear, be recognised that an age of motors is incompatible with the existence of the rarer large birds in all but the wilder and more or less inaccessible parts of the country. In Ireland, where it is known as the bunnan, the bittern apparently ceased to breed about the year 1840. In Scotland the bird never seems to have been very common, although individuals occasionally wandered so far north as the Outer Hebrides, the Shetlands, and the Orkneys.

In many parts of continental Europe, up to between lat. 60° and 62° , the bittern is still a common breeding-bird; while eastward its range extends to western Siberia, whence it visits in winter India, Burma, and China. In the west its winter-range includes the north-eastern countries of the African continent.

As a genus (of which there are five species, with a collectively

almost cosmopolitan distribution), the bittern may be distinguished from the little bittern and its relatives, not only by its superior size, but by the greater proportionate length of the middle toe, with its claw, which exceeds that of the shank of the leg; the latter segment being also much longer than the beak, which is comparatively short; and also by the two sexes being similar in plumage, which is characterised by its length and looseness.

To describe such an easily recognised bird as the bittern may seem almost unnecessary, although such a course is advisable not only for the sake of uniformity, but in order to aid in distinguishing the species from its American relative, which is an occasional straggler to this country. In length the bird varies from 26 to 28 inches, and in weight usually from $2\frac{1}{2}$ to $2\frac{3}{4}$ lbs., while it has a wing-spread of only 2 inches less than 4 feet. The general colour of the loose plumage may be best described as bright buff barred above and streaked below with black; the crown of the head being wholly black. The long feathers of the back of the neck, which can be erected to form a



Mounted in the Rowland Ward Studios

BITTERN.

kind of fan-like crest, are marked down the middle with black and on the sides with reddish-brown stripes crossed by dark brown bars; while the beak is greenish yellow passing into dark horn-colour at the tip of its upper half, the bare skin in front of the eye and the legs are grass-green, and the eye is yellow. Young birds differ by the absence of the black and chestnut barrings characteristic of the wing-coverts and quills of the adults; and the nestling is clothed with scanty hair-like down of a rust-colour above and dull white beneath.

As already mentioned, the colouring of the bittern is perfectly adapted for concealment amid the bulrush and reed brakes which form its

home ; this resemblance being intensified by the habit the bird, when alarmed, has of standing motionless with its beak pointing to the sky. It is in this posture that the cock bittern utters during the breeding-season at night its well-known booming cry, which resounded far and wide over the desolate fens in the old days. During the daytime in the breeding-season, and altogether at other times of the year, the only sound uttered by either sex is apparently the hoarse two-syllabled croaking call-note. For the greater part of the year the bittern is a solitary bird, although it associates in pairs during the breeding-season, and on migration frequently collects in small parties, which disperse on arrival at their destination. As it is at all times difficult to flush, rising with a slow heavy flight, and soon dropping again into its beloved reed-brakes, which it seldom voluntarily leaves except when about to migrate, the bittern is a bird of whose habits our knowledge is of necessity to some extent limited. It is stated, however, that on their first arrival at their breeding-swamps bitterns will sometimes alight on trees when the reeds are too low to afford them sufficient shelter and protection. Their food is much the same as that of herons, including eels of a foot in length, fishes of half that length, water-rats, frogs, insects, and a certain amount of vegetable substances. The nest is a large structure of dry rushes planted on firm ground in a reed-brake ; and the three to five eggs are brownish olive in colour with a faint tinge of green, and measure from 2 to $2\frac{1}{4}$ inches in length. March and April are the laying months, and the period of incubation appears to be about five-and-twenty days, after which the young remain in the nest till they are full-fledged and nearly able to take care of themselves. Only one brood appears to be produced in a season ; and the individual eggs seem to be laid after an interval of several days. It does not appear that the cock takes any share in the task of incubation.

American Bittern Although a native of the western hemisphere, the
 (*Botaurus* American bittern is so frequent a visitor to our
lentiginosus). shores that it is certainly entitled to a definite place
 in the British list, more especially since it was

originally named and described on the evidence of a British specimen killed in the year 1804. This species presents a close general appearance to the European bittern, from which, however, it may always be distinguished by the uniformly leaden hue of the primary quills of the wing, as well as by the crown of the head being brown instead of black, and by the narrow irregularly concentric series of black bars

on the feathers of the back and wings in place of the heavy V-shaped bars characteristic of its cousin. Young birds are of a ruddier tint, with coarser mottlings. The nestling and eggs it is superfluous to describe.

Thirty-one instances of the occurrence of the American bittern in the British Islands were recorded during the nineteenth century, two of which are, however, doubtful, thus reducing the number to twenty-nine. Of these, twelve are Irish, and six Scottish (including Islay, in the Hebrides), the rest being from England, Wales, and the Isle of Man (one). A specimen has also been taken in Guernsey. In 1903 one was caught in the Scilly Islands, while another was killed in Cornwall in 1906.



AMERICAN BITTERN.

Stork (*Ciconia alba*).

The stork, which was apparently never a breeding British bird, although it has been from time immemorial an irregular visitor in spring and autumn

to our islands, more especially the eastern counties, is the typical representative of a second group of the *Herodiones*, differing from the herons and bitterns in the following features:—Among external characteristics, the featherless tract of the back stops short of the neck, there are no “powder-down” patches, and the middle claw is not serrated. In the neck the number of vertebræ is only seventeen instead of from eighteen to twenty; while there are no muscles attached to the lower part of the windpipe, and in consequence of this latter feature storks are entirely destitute of any cry, the utmost they can do in the way of making a noise being to snap the two halves of their beaks together, or, in some instances perhaps, to emit a kind of grunt. In this respect these birds are markedly different from herons and bitterns, and still more so from cranes.

All the members of the group may be included in the single family *Ciconiidae*, which is characterised by the absence of any distinct

grooves in the sides of the upper half of the long and stout beak, the short tail, long wings and legs, in the latter of which the lower half of the second segment is bare, the moderately long toes, of which the three front ones are united at their bases by webs, the generally short, blunt, and broad claws, and the six-sided scales covering the shank of the leg.

Since the two British representatives of the family belong to the typical *Ciconia*, it will be unnecessary to point out in what respects that genus differs from the other generic types; and as regards the present species, its red beak and legs, and its white plumage with black wing-quills are amply sufficient to enable it to be recognised at a glance. The characteristics of the nestlings and eggs of both this and the next species need not, of course, be mentioned in this work.



STORK.

The white stork, as the species is called to distinguish it from its sable relative, ranges over the greater portion of Europe, Africa, and western and Central Asia; breeding in the north temperate zone and emigrating in winter southwards to Africa and India. Holland is the nearest country to England in which storks breed, and there, owing to the special protection and encouragement accorded to these birds, they nest, as is well known, on the house-tops,

and live, in fact, in a kind of semi-domesticated condition. There are other districts where they follow the same practice; but their natural habit is to build large nests in trees, wherein the female lays from three to five white eggs. The food of the stork is much the same as that of the heron, comprising fish, reptiles, frogs, and insects. In India, where they arrive in October and depart in March, storks are generally seen in flocks on open plains.

As already mentioned, the stork is most commonly seen in the United Kingdom in the eastern and southern counties of England; and its visits there are too numerous to merit separate record. It may be mentioned, however, that a specimen was shot in Norfolk so recently as the summer of 1905, when flying in from the Wash; while a second was killed in Glamorganshire in 1902. In Scotland

the stork is rare; and only three well-authenticated instances of its occurrence in Ireland were recorded up to 1900. Although generally referred to as *Ciconia alba*, the white stork will be found described in some works under the name of *Ciconia ciconia*.

Black Stork
(*Ciconia nigra*).

As indicated by its name, the black stork is the very opposite to the preceding species in the matter of colour; the upper-parts, together with the higher portion of the breast, being black with metallic reflections, the beak, legs, and feet coral-red, and the under-parts alone white. Both sexes are alike in plumage, but in birds of the year the feathers of the upper-parts are dull metallic brown with dirty white edges, and the horny parts olive-green, changing later to orange-red.

The distribution of the black stork is very similar to that of its white cousin, although the winter-range does not include the south of India, Ceylon, or Burma. To Great Britain the species is, however, a much more uncommon visitor, only twenty-two instances of its occurrence there during the nineteenth century having been recorded, the latest of these being in 1900. Out of these twenty-two records Norfolk and Suffolk claim seven, and Dorset, Devon, and Cornwall (inclusive of the Scilly Isles) six; while the most northerly record is Yorkshire. No example has ever been taken in Ireland.

Glossy Ibis
(*Plegadis*
falcinellus).

especially the eastern counties, which, from their topographical



MOUNTED IN THE ROWLAND WARD STUDIOS

BLACK STORK.

position are specially favoured in the matter of rare feathered visitors. Formerly ibises were regarded as near relatives of the curlews, and are, we believe, still called by that name in Norfolk. They differ, however, widely in structure, as well as in the colouring of their plumage, from these birds; the only special resemblance between the two groups being the long sickle-shaped beak—a feature which cannot alone be regarded as of any importance in indicating relationships.

Together with the spoonbills the ibises form the third, and (so far as Britain is concerned) last group of the *Herodiones*, which is distinguished from those respectively including the storks and the herons



MOUNTED IN THE ROWLAND WARD STUDIOS

GLOSSY IBIS.

by the slit-like form of the apertures of the nostrils in the skull, the presence of two notches on each side of the hind or lower border of the breast-bone, and the prolongation of the hind extremity of the lower jaw far beyond the point of its articulation with the skull in the form of a long recurved process. In the latter feature ibises and spoonbills resemble ducks and geese.

Ibises form a family by themselves—the *Ibididæ*—sufficiently characterised by the downwardly curved, curlew-like beak. From the more typical members of the family the glossy ibis differs in the circumstance that the front of the shank of the leg is covered with large transverse shield-like scales, instead of with a network of small six-sided ones; and likewise by the head of the adult, except for a

comparatively small space in the neighbourhood of the eye, being fully feathered. The bird derives its distinctive name from the glossy black hue with metallic reflections of the upper-parts, with the exception of the head and neck, which, like the under-surface of the body, are deep reddish brown. The beak is dark brown, the bare skin round the eye greenish, the eye itself hazel, and the leg bronzy brown. In appearance the hen differs from her partner merely by her slightly inferior size; but birds of the year lack the beautifully bronzy green tints of their parents, and also show streaks of grey and white on the head and neck. The nestling and eggs do not concern us in the present work. In size the adult is approximately the same as the male curlew, the total length being 22 inches.

The glossy ibis ranges over the warmer regions of the greater part of the globe, extending from the south of Europe across Asia to India, China, the Malay countries, and Australasia, and reappearing in the Eastern United States, although replaced to the south of the latter by a nearly related species. From the south of Europe a certain number of individuals cross the Alps, and of these some wander so far north as the British Isles and even Iceland and the Färoes. Although probably more frequently seen in Norfolk (where it was known to the fen-men and gunners as the black curlew, and was far from uncommon three-quarters of a century ago) than elsewhere, this bird has occurred occasionally in almost every part of the United Kingdom. The instances of its occurrence in our islands are indeed much too numerous to be quoted in detail; but it may be mentioned that between the years 1872 and 1900 thirteen British and Irish specimens were recorded. Since the latter date several British occurrences have been noted, including no less than twelve from Ireland and six from Scotland and the Isles.

In India, where it is a common and well-known bird, the glossy ibis is usually seen in large flocks, which frequent marshes, tanks, rice-fields, and the margins of tidal creeks and rivers, where it feeds upon insects, crustaceans, shell-fish, worms, and such-like. The nest is a platform of sticks built in a tree, and containing at the proper season three bright blue eggs.

Spoonbill
(*Platalea*
leucorodia).

Three centuries or so ago the quaint and yet eminently graceful spoonbill used annually to nest with the herons at Claxham and Reedham in Norfolk, as well as at Trimley in the adjacent East Anglian county; while there is likewise evidence that a century earlier

it built near Goodwood, and other records indicate that Fulham, the woods of Whinburgh, Cantley, and Wormgay in Norfolk, as well as a district in Pembrokeshire, have to be included among its ancient breeding-places. Whether in those old days the shovelard, shoveler, or popeler, as the bird was then commonly called, was a permanent resident in England or merely a summer-visitor from Holland (where it is still abundant), cannot now be determined, although it is quite probable



SPOONBILL.

that the latter was the case. Despite the fact that a flock of fourteen was seen on a river in Wales so recently as the year 1893, while there are also records of flocks a dozen or so strong in Cornwall, the spoonbill had some years ago practically ceased to visit its old Norfolk haunts, or at all events was but very seldom seen there. Bird-protection is, however, gradually having the effect of inducing many of the rarer species of birds to make their appearance once more on the Norfolk coast, and among these welcome strangers during the last few years have been a considerable number

of spoonbills. In May 1904 there were seen, for instance, no less than seven of these beautiful birds at one time on Breydon Broad, while a month later four were seen in company at the same place, three of which were believed to be new arrivals. Although such results are highly encouraging, it can scarcely be anticipated that the spoonbill will ever again become a British-breeding bird. From time to time a stray individual of the species is seen in counties other than of East Anglia, an example having been recorded from Surrey, for instance, in 1902. To Scotland the spoonbill appears to have been never anything more than a rare and occasional visitor, and then

mainly, if not entirely, to the estuaries of the east coast; it is noteworthy, however, that in the autumn of 1859 a flock of half-a-score visited the Orkneys, whence few of them were permitted to return. To Ireland this bird has likewise always been only an occasional visitor.

The proper range of the species includes the whole of central and southern Europe, together with eastern Africa, the south-western countries of Asia, and thence through Baluchistan, Afghanistan, and the heart of the eastern continent to India and China. In parts of India spoonbills are resident birds, frequenting marshes, tanks, rivers, or rice-fields in small flocks, and feeding in shallow water on insects, shrimps and crabs, snails, water-plants, and, less commonly, frogs and small fishes. To Holland and other parts of northern Europe the species is a summer-visitor, arriving in April and departing towards the close of September. It is somewhat remarkable that while in India at the present day as in England in past times, spoonbills build in tall trees in company with herons, in Holland and other European resorts in general they resort to willows, alders, and other low-growing trees. Spoonbills fly well and strongly, with their necks stretched straight out; and they are also good swimmers. In searching for food they use their beaks very much after the fashion of ducks. The only sound uttered by those birds is that produced by clapping together the two halves of the beak in the characteristic stork-fashion. The nests are built of sticks, and the four eggs chalky white with indistinct brown spots.

The spoonbills, which have been divided into three genera, are closely related to the ibises, but are generally regarded as representing a family by themselves, the Plataleidæ, characterised by the great flatness and marked terminal expansion of the beak, and also by the circumstance that in the dried skull the nostrils are less distinctly of the slit-like type.

The spoonbill is such an unmistakable bird that description is really superfluous. It may be mentioned, however, that the legs, feet, and beak are black, the latter tipped and barred with yellow; that the plumage, with the exception of the long drooping crest assumed during the breeding-season, and a band across the lower part of the neck, which are buffish, is wholly white; and that the bare skin on the throat is orange-yellow, and the eye red. The hen is somewhat inferior to her partner in point of size, and has also a rather smaller crest in the breeding-season. In young birds the eye is ashy grey, the shafts and tips of the quills are black, and there is no crest; the nestling is clothed in white down. The black tips to the quills in

the young would seem to indicate that spoonbills are descended from dark-coloured ancestors, although no such bird is now in existence.

A brief reference may here be made to the tall and stately flamingo (*Phœnicopterus roseus*), which, with its lovely rose-tinted plumage and its curiously bent beak—correlated with the unique habit of feeding with the head in an inverted position—is the typical representative of a genus of birds which seems to hold a kind of intermediate position between the stork group on the one hand and the ducks, swans, and geese on the other. Not that flamingoes are in any sense to be regarded as the actual connecting link between these two groups, but rather that all three are descended from a common ancestral stork. In consequence of this somewhat intermediate character these birds have been sometimes brigaded with the storks and at other times with the ducks; but the general view at the present day is to regard them as the sole existing representatives of a distinct group—the Phœnicopteri—and this view is accordingly adopted in this work.

In general build flamingoes are stork-like birds, and they agree with the members of that group in having a palate of the bridged type, and with the storks themselves in the oval form of the nostrils in the dry skull; on the other hand they resemble the ibises, spoonbills, and ducks in that the hind end of each half of the lower jaw is prolonged far behind the point of its articulation with the skull in the form of a hook-like process, while they approximate to the duck group alone in that the beak is furnished with a number of transverse plates for the purpose of straining off the water from their food, acting in the same manner as the whalebone-plates of a whale. In the curiously bent form of the beak in the adult—for in the young it is straight—flamingoes are quite peculiar. As an instance of their intermediate character between storks and ducks, it may be mentioned that on the base of the skull there are often rudimentary surfaces for the articulation of the bones of the palate; such flat surfaces being absent in the storks, but fully developed in the ducks and their kindred. Among other characteristics, it will suffice to state that although flamingoes have very large blind appendages (cæca) near the lower end of the intestine, they lack featherless tracts on the sides of the neck, and that the oil-gland is tufted and the wing furnished with twelve primary quills.

In the case of a bird which is such an extremely rare straggler to the British Isles—even if the birds occasionally recorded there are truly wild—it will be quite unnecessary to enter on the consideration of the colouring of its plumage, its distribution, or its habits. Indeed,

if the bird were not the representative of an order by itself, it would not have been accorded a notice even of the length of the present one. It will suffice therefore to state that the flamingo is a native of the marshy districts of southern Europe, and that a specimen taken in Staffordshire in 1881, a second in Hampshire two years later, and a third seen in Kent in 1884, are believed by some authorities to indicate truly wild stragglers to this country. In a work¹ where the opinion is expressed as to the authentic nature of these occurrences, it is also stated that fossil flamingoes are common in the south of England, although there is not the slightest foundation for such an assertion.

Whooper Swan (*Cygnus musieus*). Although the mallard, or wild duck is the typical representative of the large and easily recognised group of water-birds generally designated in ornithological works the *Anseres*, but sometimes termed *Anseriformes*, and ought therefore properly to come first, such an arrangement would interfere with the correct grouping of the various genera and species according to their natural affinities. This being so, it is better to commence the group with the swans, which form its most specialised section. It may, however, be first mentioned, in order to anticipate criticism with regard to taking as the typical representative of a group which derives its title from the geese (*Anser*) a species belonging to the duck tribe (*Anas*), that all the members of the group are included in the family Anatidæ, and that of this family, as well as of the sub-family Anatinae, the mallard is unquestionably the typical representative.

In the essential characters of the skull, namely, the bridged palate and the oval nostrils, the *Anseres* resemble the storks, while they agree with the ibises and spoonbills in the production in the form of a hook of the hind extremity of each half of the lower jaw far beyond its point of articulation with the skull. They differ, however, broadly from all the *Ciconiæ* in that the base of the skull bears special flat surfaces for the articulation of the bones of the hind part of the palate, and also in the presence of transverse plates on the under surface of the upper half of the beak, in both of which respects they approximate to the flamingoes. Another distinctive feature is the presence of a smooth rounded surface, or "nail" on the tip of the beak; the beak itself being generally more or less depressed and expanded. In all cases the nostrils are pervious, the wing carries eleven primary quills, the oil-gland is tufted, the body-feathers have, at most, only

¹ Sharpe, *Handbook to the Birds of Great Britain*, vol. ii. p. 223.

rudimentary after-shafts, and there are no featherless tracts on the neck. The three front-toes are (in all British forms completely united by webs, and the short hind-toe is elevated above the level of the others. The close compact plumage, general build, and waddling gait of most representatives of the group are too well known to need more than passing mention. To these easily recognised external characteristics it may be added that the "merry-thought" bone (furcula) is U-shaped in place of the more usual V-shape, that the



MOUNTED IN THE ROWLAND WARD STUDIOS

WHOOPER SWAN.

large breast-bone has a single shallow notch (sometimes converted into a perforation) on each side of its hind border, and that the lower part of the intestine is furnished with a pair of relatively large blind appendages (cæca). To correspond with the plates on the inner surface of the upper half of the beak, the sides of the tongue are furnished with a series of ridges and grooves, so that the margins of the mouth form a most efficient straining apparatus, whereby the solid food is separated from the water.

All members of the group, which includes

ducks, swans, geese, and mergansers, associate in pairs during the breeding-season, although many of them collect in large flocks for the winter. Although a few foreign species habitually perch and build in trees, the great majority make their nests as a rule near the water's edge, employing rushes or grass in their construction, and lining them with down plucked from the breast of the female, and also using this material as a packing for the eggs. The latter are numerous and uniformly coloured; their tint varying from white through cream-colour and buff to pale sea-green, but their shape being always oval or elliptical. On emerging from the shell, the young are fully clothed with down, and are at once

able both to run and to swim. In at least the great majority of species all the quill-feathers of the wings are moulted at once, so that for some time the birds are quite unable to fly, and are therefore absolutely at the mercy of their enemies, unless they can escape by effectually concealing themselves. There is considerable difference in regard to the characters of the plumage, the two sexes in the swans and geese being alike in this respect throughout the year, whereas in most ducks the drake is very dissimilar in colouring to his partner for the greater part of the year.

Swans constitute a special subfamily—the *Cygninæ*—of the family *Anatidæ*, characterised by the large size of its members, the great length of the neck, which is as long as or longer than the body, and contains a greater number of joints, or vertebræ (23 to 25), than in any of the other three subfamilies, in which there are less than twenty. The sexes are also alike in plumage, and the hind-toe is not furnished with a vertical lobe on its lower surface. They are further characterised by having the region round the eyes bare of feathers. Like the geese and many ducks, swans moult all their flight-feathers at the same time, and there is consequently a period when they are unable to fly and are therefore practically helpless and easily captured. The small *Coscoroba* swan (*Coscoroba candida*) of South America, which was formerly classed with the swans, and connects in some degree that group with the geese, has been, but I think wrongly, transferred to the latter group.

Swans may be regarded as the most specialised, or advanced group of the order to which they belong, that is to say, they have departed very widely from the primitive type, which is most nearly represented at the present day by the mergansers and their kindred. This is indicated not only by their bodily size and long necks, but also by the complete loss of the diving habit, and above all by the character of the plumage. They have, for instance, when adult, but one dress, which corresponds to the breeding-dress of less specialised birds, and, as already mentioned, is similar in the two sexes; the non-breeding dress persisting only in the case of the young birds, or cygnets. Further, the adult dress, which is either wholly white or wholly black, or black and white, is evidently an ornamental and conspicuous one; these birds being sufficiently protected by their size and their habit of keeping to open water, so that a protective livery is unnecessary. All swans feed by plunging the long neck to the bottom of shallow water or as far as it will reach in deeper water, and pulling up vegetable substances with their beaks. All the British species are white.

The whooper swan, which measures 5 feet in length, is specially characterised by the absence of a knob at the root of the beak and the yellow colour of the base of this and of the bare skin in front of the eyes; the yellow extending forwards on each side beyond the nostril in the form of a wedge, and presenting a strong contrast with the black of the rest of the beak. In the cygnet the beak is dark flesh-colour, tipped and bordered with black; and the plumage is ashy brown, paler beneath, and fading into white on the hind part of the abdomen. The newly hatched chick is uniformly white. The weight may be as much as 24 lbs.

The breeding-range of the whooper embraces the extreme north of Europe and Asia; Iceland, Norway north of the Arctic Circle, Lapland, and Sweden and Russia as far south as latitude 62 being included within this area. In winter these fine birds spread themselves over the greater part of temperate Europe and Asia, inclusive of the British Isles on the one side and those of Japan on the other. At the commencement of the last quarter of the eighteenth century the whooper was reported to be a permanent resident in the Orkneys, where it of course nested; but this has long since ceased to be the case, and the species is now known to the British Islands as a winter-visitor. In Scotland, where it is generally much more numerous than in England, the wild swan usually arrives in November, and may stay as late as May; but in an unusually hard winter many of these Scotch birds travel farther south in December or January, when they may make their appearance all over the southern counties of England. To Ireland it is a rare and irregular visitor, least uncommon in Ulster; as a rule only about four per cent of the wild swans which visit the country in winter belonging to the present species. The "whoo-hoo"-like cry serves to distinguish the whooper when on the wing from the much smaller Bewick's swan.

Swans are so well known in a domesticated or semi-domesticated condition, and all are so similar in their habits, that it is scarcely necessary to make any reference to their mode of life beyond what has been already stated. It may be mentioned, however, that in the wild state they usually associate in small flocks on lakes, marshes, or rivers, and occasionally resort to the sea. Except when on migration, they seldom take wing, but when they do, their flight is heavy and noisy, their long pinions making an unmistakable partly creaking and partly whistling sound. It is but rarely that wild swans come on land. Although their food mainly consists of water-plants, it also includes pond-snails, insects, and grubs. In a huge nest of sedge and grass, generally placed near water and in

some instances well concealed by dwarf willow-scrub, the female lays a clutch of from two to four or five, or even seven, creamy-white eggs, measuring about $4\frac{1}{2}$ inches in length. Incubation, which usually commences in May, lasts forty-two days; and both parents swim about with the cygnets. Swans of both sexes are bold and pugnacious birds when they have cygnets, advancing to the attack with ruffled wings and a loud hissing cry; and an instance is known where a crow that had attempted to attack the cygnets while on land was seized by the male bird and drowned. The curious habit possessed by swans of swimming with one leg out of the water is probably well known to most persons. In some works the species is described under the name of *Cygnus cygnus*.

Bewick's Swan (*Cygnus bewicki*). The swan which takes its name from the early British ornithologist Bewick is to a great extent a miniature of the last, with which it agrees in habits and in the colour of its eggs. In addition to its inferior size (the length not exceeding 4 feet 2 inches), it may, however, be distinguished by the yellow area on the beak being restricted to the sides, where it forms a conical patch, which extends backwards over the bare skin in front of each eye. Cygnets are greyish brown, with yellow eyes; and attain the adult white dress at the end of their second year. The chick in down is greyish above and white below. The weight of the adult is from 13 to 15 lbs.



BEWICK'S SWANS.

The breeding-range of Bewick's swan extends from the neighbourhood of the White Sea and the Petchora far eastwards into Siberia, although its limits in the latter direction do not appear to be definitely ascertained. Although less common in England than the whooper, this swan appears to be much more abundant than the latter in the Hebrides, the north of Scotland, and Ireland, where, as already mentioned, it is estimated to form about ninety-six per cent of the wild swans. Indeed, in severe winters these swans occur in hundreds

on some of the Irish lakes, where they usually make their appearance as late as December, to depart in the following February. By some ornithologists the name of *Cygnus minor* is employed for this swan. An immature swan killed (with others) at Aldeburgh, Suffolk, in 1866, has been regarded as a specimen of the American trumpeter-swan (*Cygnus buccinator*).

Mute Swan
(*Cygnus olor*).

From the fact that the cygnets, both wild and domesticated, occasionally assume the white plumage of the adult immediately on quitting the downy stage, the mute swan may be regarded as the most specialised member of the group; being, in fact, a species which is on the way to entirely discard the original non-breeding plumage, retained in the young of all other

swans. It was on the evidence of such white cygnets that the so-called Polish swan, which takes its name of *Cygnus immutabilis* from this peculiarity, was at one time regarded as a separate species.

From both the whooper and Bewick's swans the present species is distinguishable at a glance by the presence of the large fleshy black knob or "berry" surmounting the root of the beak. The black extends downwards and backwards as far as the eye, but the rest of the beak is reddish orange, except the tip and a ring round each of the nostrils, which are black, as are also the legs and toes. Cygnets—save for the



MUTE SWAN.

above-mentioned occasional exceptions—are sooty grey above and paler beneath, with no knob on the beak, which, like the legs and toes, is lead-coloured. Ash-grey and paler below is the colour of the newly hatched chick. From $4\frac{1}{2}$ to 5 feet is the length of the adult bird.

The mute swan is, however, not distinguished solely by external characters, for its windpipe does not enter a hollow in the breast-bone, as is the case in the two preceding species; this feature accounting for the lack of voice in the present bird. Another distinctive feature is to be found in the pale green colour of the eggs.

In the British Isles the mute swan exists solely as a domesticated bird, although the date of its introduction is unknown. The largest swannery in the United Kingdom is the one at Abbotsbury, in Dorchester, belonging to the Earl of Ilchester, where the birds live chiefly on the Fleet estuary, but not unfrequently visit the open sea. In the wild state the present species breeds in southern Scandinavia, Germany, central and southern Russia, the lower Danubian princi-

BEWICK'S, ♀.

BEWICK'S.

POLISH, IMM. MUTE, ♂.



WHOOPEE, IMM. WHOOPER, AD.

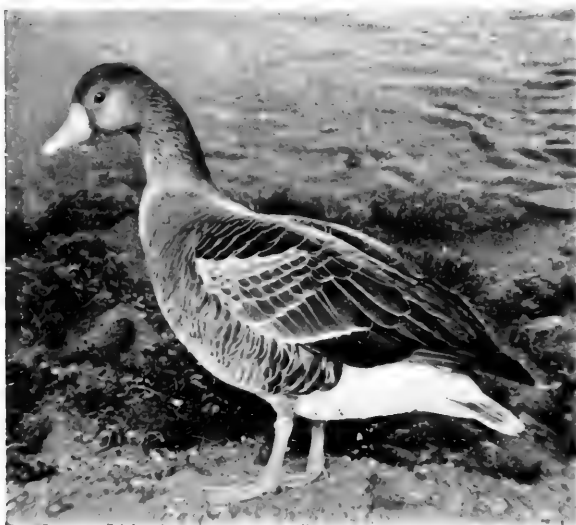
HEADS OF BRITISH SWANS.

palities, on the Black and Caspian Seas, in Asia Minor, and thence eastwards by way of Turkestan and Mongolia to Amurland. As regards habits, it will suffice to say that the period of incubation among domesticated birds lasts for thirty-nine days, that is to say, nearly six weeks; the first egg being not unfrequently laid soon after the middle of March. It is believed that the females do not begin to lay before their third year.

Grey Lag Goose The grey lag goose (the *Anser anser* of some writers, and *A. cinereus* of others) is the first and typical representative of the subfamily Anserinæ, which includes

not only the grey geese, but likewise the brent and bernicle geese. All the members of the group are sharply distinguished from the swans by their relatively shorter necks, which contain less than twenty joints, or vertebrae. They are further characterised by the fact that the lower end of the windpipe, at any rate in the more typical members of the group, is not expanded into a bladder-like chamber. In form, they are heavily built birds, with their legs placed nearer the middle of the body than in ducks; and they are thus better adapted than the latter for walking on land, where they spend much of their time, and obtain a large proportion of their food. The latter in the case of many species consists largely of grass or other green herbage; but seaweed forms

the chief nutriment of other members of the group. As a rule, the sexes are alike in plumage, which is generally of a grey or brown colour, without a metallic or white bar ("speculum") on the wing. As in the swans, the beak is much expanded, armed at the tip with a broad flattened "nail," and provided on the inner surface of its upper half with a number of transverse plates for straining the water from the food. There is apparently only one moult, which takes place soon after the goslings are hatched; and it would seem that in the adults of both sexes the plumage is a permanent breeding-dress, which has completely displaced the original non-breeding livery. The lower segment, or



MOUNTED IN THE ROWLAND WARD STUDIOS

GREY LAG GANDER.

shank, of the leg is relatively stout, considerably longer than the beak, and covered all round with small scales which form a network-like pattern. Geese, which are arranged in six genera, are for the most part inhabitants of the colder parts of the northern hemisphere, although some are found in the Antarctic regions.

In the typical genus *Anser*, as represented by the grey lag goose and

its immediate relations, the short and sub-conical beak is high at the base, with the nostrils situated about midway between the latter and the tip, which is covered with a large "nail"; the wings are large, but the tail, which comprises either sixteen or eighteen feathers, is short and rounded; and the legs are of medium length, placed well forward on the body, and suited for walking on land.

The grey lag goose, which measures two inches short of a yard in length, is specially characterised by the bluish-grey colour of the lesser wing-coverts and the feathers of the hind part of the back, and the white "nail" of the beak. As regards the rest of the colouring, the head, neck, and fore part of the breast are greyish brown,

with a few white feathers round the base of the beak ; the feathers of the back are chocolate-brown with pale buffish tips, which in the region of the scapulars and flanks form conspicuous transverse bars ; the breast is white, with a number of irregularly disposed black feathers ; and the beak, legs, and toes are flesh-coloured. The goose is distinguishable from the gander by her somewhat inferior size ; while young birds are recognisable by the absence of black spots on the abdomen and white feathers round the beak. Goslings are olive-brown above, with the forehead, sides of the head, the hind part of the neck, the breast, and the flanks greenish yellow, and the abdomen yellowish white. The weight of the adult is from 9 to 10 lbs.

The grey lag breeds in Europe north of about latitude 50° , and thence eastwards through Central Asia to southern Siberia ; while in winter it visits the Mediterranean countries, south-western Asia, northern India and China. It is true that the Siberian bird has been separated by some ornithologists as a distinct species, under the name of *Anser rubrirostris* ; but as the chief distinctive character is the darker under-parts, it can scarcely be regarded as more than a local race, especially as doubt has been expressed whether the darker hue of the lower surface is constant. In Great Britain the species is in course of disappearance as a permanent resident, for whereas in pre-drainage days it nested in the Lincolnshire fens and some districts of Yorkshire, its breeding-areas are now restricted to certain parts of the Scottish mainland (inclusive of Ross-shire, Sutherland, and Caithness) and the Hebrides, and even in these districts its numbers are steadily decreasing. Considerable numbers of these geese (although less than those of the brent and the pink-footed species) visit, however, our islands in winter, where they often arrive in flocks in many localities other than the east and west coasts of England. To Ireland, where it is believed to have bred in Leinster during the eighteenth century, the species is now a local winter-visitor to certain districts in the east of Leinster and the lower course of the Shannon, while elsewhere it occurs only irregularly.

In habits the typical geese are so generally similar, that one account (and this brief) will serve in the main for all. As already mentioned, these birds walk well on land, where they spend a considerable portion of their time in grazing after a fashion peculiarly their own ; and they likewise swim strongly, with their bodies raised well out of the water. They are all surface-feeders, and generally associate in large flocks, or "gaggles," flying at a high speed in chevron-shaped order ; all are migratory, and their cry is a peculiar cackling sound,

too well known to need any attempt at description. The nest is a large loose structure of grass and sedge, lined at times with moss, and always furnished with a good supply of down as the eggs are laid: it is placed on the ground in the neighbourhood of water. In the case of the present species the number of eggs in a clutch is five or six; when first laid (in March in Germany, but not till May in Scandinavia), they are pure white; in length they range from $3\frac{1}{4}$ to just over $3\frac{1}{2}$ inches. Grass, grain, and water-plants compose the food of the species. During winter, when these birds gather in large flocks in countries where they are abundant, they feed on land in the morning and evening, and pass most of the day on sand-spits, or on the edges of the water. On the other hand, during the moulting-season, when, owing to the simultaneous shedding of the flight-feathers, they are debarred from seeking shelter in flight, they either keep to open water or skulk amid sedge and rushes.

Authorities differ as to the meaning of the name "grey lag," some regarding it as derived from an Anglo-Saxon word indicating "field," as opposed to "sea"; while others are inclined to consider that it means "the goose which lags behind," in reference to its former breeding in the north of England. The latter derivation seems, however, on the face of it, to be highly improbable.

A specimen referred to the so-called *A. rubrirostris* was shot in Ireland in 1901.

**White-fronted
goose (*Anser
albifrons*).**

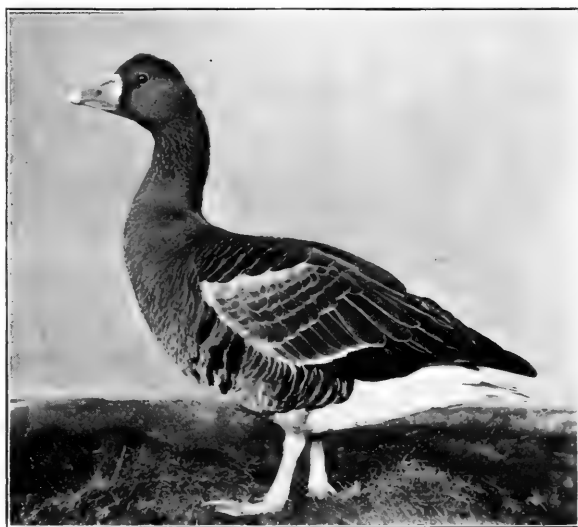
From the grey lag the white-fronted goose may be distinguished by its inferior size (the length not exceeding 30 inches), the broad white band round the base of the beak from which it takes its name, the dark brown lesser wing-coverts and hind-part of the back, the conspicuous black barring of the breast, and the orange beak and legs. The adult goose is somewhat smaller than the gander, with fewer bars on the breast. Young birds are darker than their parents, never uniform in colour, with little or no white at the base of the beak, and the "nail" of the latter light brown instead of white, young females being distinguishable by the absence of black markings on the breast. Goslings are dark brown above and greenish yellow below. The weight of full-grown birds ranges from $6\frac{1}{2}$ to 7 lbs.

The white-fronted goose breeds farther north than either the preceding or the following species, and never nests within the British Isles, to which it is a winter-visitor, with a local and irregular distribution. The breeding-range includes the whole of sub-Arctic Europe and Asia;

Iceland and Greenland being apparently the most southern breeding-resorts in the Atlantic basin. In North America the typical bird is replaced by a somewhat larger race (*Anser albifrons gambeli*), sometimes regarded as a distinct species. In winter the present species migrates south to much the same extent as the grey lag goose. Although on the island of Islay one of the commonest of the wild geese, this bird is only a rare visitor to the Outer Hebrides and both the east and west coasts of Scotland as well as the eastern side of England; from St. Kilda only a single example has been recorded. On the other hand, to the great bogs of all parts of Ireland this goose is a regular winter-visitor which often makes its appearance in large flocks. In the spring of 1897 an enormous party of migrating birds was observed passing over Londonderry, of which the centre was composed of plovers, curlews, and other waders, while the flanking consisted of wild geese, belonging probably for the most part to the present species. It has been suggested that some Irish specimens belong to the American race.

With the exception that its cackling is more rapid—whence the name of laughing-geese, by which it is sometimes called,—this species differs in no essential respects in the matter of habits from the grey lag goose.

A smaller form of white-fronted goose, known as *Anser erythropus* (or *minutus*), inhabiting eastern Europe and Asia, is now generally regarded as a distinct species. In length it is only 21 inches, and it has a relatively smaller, and generally darker plumage, with the white at the root of the beak extending to the top of the head between the eyes. One specimen of this lesser white-fronted goose was killed

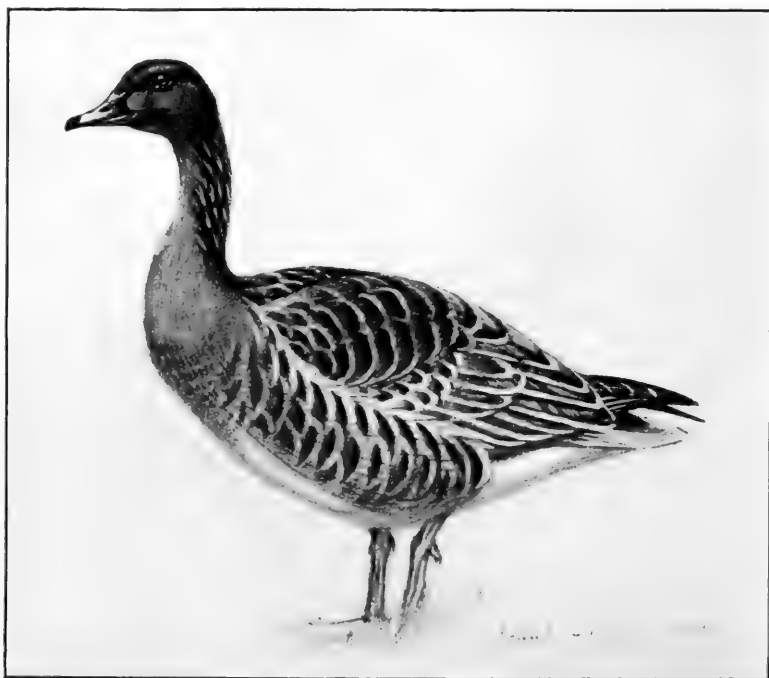


MOUNTED IN THE ROWLAND WARD STUDIOS

WHITE-FRONTED GOOSE.

in Northumberland in 1886, a second in Somersetshire in 1888, and a third in Norfolk in 1901; while a goose shot many years ago in Yorkshire may belong to the same species.

Bean-Goose Somewhat darker than the preceding species, the
(*Anser fabalis*). bean-goose (described in many works under the
name of *A. segetum*) may be distinguished by the
colouring of the beak, in which the "nail" is black and a larger or
smaller area behind this orange. Additional distinctive characters are



BEAN-GOOSE.

to be found in the orange-yellow of the legs and toes, and the absence of bluish grey on the lesser wing-coverts and of black on the breast. In length the gander measures 33 inches, and the goose is but slightly smaller. Young birds are darker and have less distinct markings than their parents, as well as a noticeable tinge of tawny on the neck. Although goslings were taken in 1901 on Kersoff Island, off Novaia Zemlia, their distinctive colouring was not recorded.

The typical *Anser fabalis* (or *segetum*), that is to say the form in

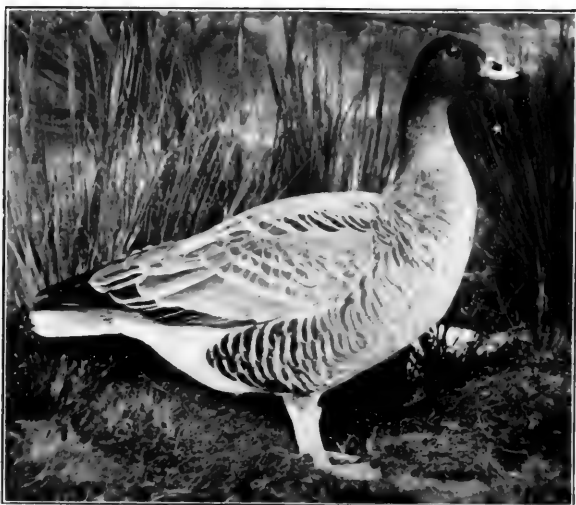
which the orange on the beak makes a ring behind the nail, appears to be rare in the British Isles, where the ordinary representative of the bean-geese is a bird regarded by some ornithologists as a distinct species, under the name of *Anser arvensis*. In the latter the beak appears to be rather longer and straighter, with the orange extending over nearly the whole of its upper surface, leaving only a black bar in the middle line, running from a shaft in advance of the nostrils backwards to the base. Whether this colour-phase of the bean-geese is worthy to rank as a distinct species, may be left to the judgment of the reader. Another form of bean-geese, *A. neglectus*, inhabiting Novaia Zemlia and Kolguev, may perhaps occur in Great Britain.

Using the term in its original and wider sense, the bean-geese breeds in Lapland and Scandinavia northwards of latitude 64° , as well as in the Archangel district of Russia, Novaia Zemlia, and thence eastwards on the tundra of the Petchora Valley in north-eastern Europe and on that of Siberia in the Yenisei district. Still farther eastward the species is replaced by the eastern bean-geese (*Anser serrirostris*), which winters in China and Japan. The true bean-geese migrates in winter to southern Europe in considerable numbers; some of the hosts passing over the British Isles on their autumn and spring journeys, and a certain percentage of these wanderers taking up their quarters on our coasts for the winter. The neighbourhood of the Caspian Sea and southern Russia generally are also favourite winter-resorts of the species. In Great Britain the species is decidedly local in winter; and in the Humber district and most parts of Norfolk, where it was once supposed to be common, its place appears to be taken by the pink-footed species. In Ireland it is much less common than the white-fronted goose. In accordance with its fondness for cold, the bean-geese leaves the British Isles as soon as winter shows signs of giving place to milder conditions. Bean-geese have recently been recorded from South Uist, in the Outer Hebrides, where the species was previously supposed to be unknown.

Pink-footed Goose In the general colour of its plumage, and more especially the bluish-grey lesser wing-coverts (which
(*Anser brachyrhynchus*). are, however, somewhat darker) the pink-footed
goose recalls the grey lag; but it is at once distinguishable by the feature from which it takes its name, as well as by the pink band across the middle of the beak, and the extension of this pink area backwards on each side below the nostril, leaving the "nail" and a broad space above the nostrils black. The gander measures

28 inches in length, and the goose an inch less.¹ The weight is from $6\frac{1}{2}$ to 7 lbs., and thus considerably less than that of the bean-geese, which ranges from $7\frac{1}{2}$ to 8 lbs. In young birds the general colour of the plumage is duller than in the adult, the lesser wing-coverts are brown, and there is little or no pink on the beak. Uniform grey is the colour of the down of the gosling.

Although accurate details with regard to the extent of its breeding area are lacking, the pink-footed goose is known to nest in Scandinavia,



MOUNTED IN THE ROWLAND WARD STUDIOS

PINK-FOOTED GOOSE.

Iceland, Spitzbergen, and Franz-Josef-land; in winter it migrates south, in the main, apparently, to western Europe. Although unfounded reports of its having formerly bred in the Hebrides were once current, the present species is known only as a winter-visitor to the British Isles, where it is most abundant on the east coast of Scotland (especially the Firth of Forth, where it is

the most common of the wild geese) and certain districts of Norfolk. In the south and west of England it is but rarely seen, and it is only somewhat less uncommon on the west coast of Scotland and in the Hebrides; while up to the date of writing only a single example had been obtained in Ireland, although the species has apparently been recognised there on at least one other occasion.

Extreme shyness seems to be one of the characteristic traits of the pink-footed goose, which is believed to nest in Spitzbergen in part on low rocks near the coast and in part on inland cliffs.

At Holkham, in Norfolk, when the tide is out, these geese pass their time out of harm's way on sand-spits, but resort to corn-lands in search of such grain as may have been left on the stubbles.

¹ One writer gives the maximum length as 26 and another as 30 inches; a wide difference in a matter of less than a yard!

The snow-goose (*Chen hyperboreus* or *albatus*), of the Hudson Bay district, which is too rare a visitor to the United Kingdom to be entitled to a definite place in the British list, is the typical representative of a small genus of Arctic geese characterised, among other features, by the unusual stoutness of the beak and the white or bluish plumage relieved by black wings. In the present species the plumage is white, with the exception of the black wing-quills and the ashy grey primary coverts; while the legs and beak are red, with black borders to the latter. Two of these geese were obtained out of a flock in Wexford Harbour in November 1871, and two in County Mayo in 1877, a party of three were seen in flight in Yorkshire in January 1891, four on the Solway (perhaps belonging to the same flock) in the same month and year, and a flock of twenty off the Northumberland coast in January 1892, while one specimen was recorded from Ireland in 1903, where two were taken in the following year. It will thus be seen that although when it does visit our shores this species often comes in parties, yet the total number of recorded visitations is only seven; and it is for this reason that it is not given a definite place in the British list.

Barnacle Goose The old legend connecting the barnacle, or bernicle, (the *Bernicla bernicla* of many authors) with
(*Branta leucopsis*). the barnacle has been so frequently repeated that it may be passed over on the present occasion with this bare mention. Although not the typical representative, the barnacle goose is a member of a small genus differing from the true geese by the circumstance that the ends of the transverse plates on the under surface of the upper half of the beak are not visible externally, and by the nearly straight (instead of sinuous line) formed by the cutting-edge of the same half of the beak. Such at least are the characters relied upon by ornithologists in assigning the barnacle and brent geese to a generic group by themselves. The general observer will, however, probably be content to recognise these birds by their handsome dark-coloured plumage.

In the barnacle goose, while the front and sides of the head are white, all the rest of the head and neck, inclusive of a stripe between the beak and the eye, is black, as are also the beak, legs, and wing-quills; the upper-parts, on the other hand, are lavender-grey with black and white bars; and the under-parts, with the exception of the grey-barred flanks, white. Twenty-seven inches is the length of the gander, while that of his partner is an inch or so less. The weight ranges from 5 to $5\frac{1}{2}$ lbs.

DUCK GROUP

Although the barnacle goose undoubtedly nests in the far north of the Old World, and possibly also in Greenland, its breeding-haunts are at present not definitely known ; and at least up to the year 1902 the British Museum collection contained no eggs of this species save a few laid in confinement. In winter this goose visits the coasts of a considerable portion of northern Europe, and occasionally wanders as far south as the northern shores of the Mediterranean, while in America it is also met with in small numbers on those of Hudson Bay. In Great Britain, although rare on the eastern coasts, and still more so on those bordering the English Channel, the barnacle goose is an abundant



BARNACLE GOOSE.

bird on the west coast, where, especially on the Solway Firth, it may sometimes be seen in thousands ; its sojourn within our borders commencing as early as the latter part of September and continuing to the end of March. It is likewise common at this season on the western islands of Scotland ; while it also occurs in the more southern islands of the Shetland group, a fact testifying emphatically to its cold-loving nature and its repugnance to warm climates. In Ireland it is a regular, although local, winter-visitor to the coasts and islands of Louth, Donegal, Sligo, Mayo, and Galway.

On the shore this species may be distinguished from the brent goose (with which it is often confounded) by the sharp line of division between the black of the neck and the white of the breast, and by the

white patch near the eye, as well as by its superior size, and its peculiar cry, which has been compared to a coughing grunt. Like the other members of its genus, the barnacle goose is essentially a shore-bird, resting on spits of sand for a large portion of the day, and grazing on the grass of the salt-marshes. Although associating in large companies of their own kind, they do not mingle with other birds: the presence of a flock is indicated by the frequent cackling of its members. At times they go on the water, but seldom swim for long.

Brent Goose
(*Branta bernicla*).

The brent goose (*Bernicla branta* of many authors), which is often confounded with the last, is said to take its name from the colour of the plumage of the back; this being comparable to the tint of charred wood, and thus suggesting the name "brent" or "burnt." From the barnacle goose the brent is readily distinguished by the uniformly smoky black of the head, neck, and breast, with the exception of a small white patch on each side of the neck; on the back the feathers are blackish grey with lighter edges; the upper and lower tail-coverts, together with the hind part of the abdomen, are white; while the tail-feathers and wing-quills are black, as are also the beak and legs. The gander measures about 22 inches in length, and weighs from $3\frac{3}{4}$ to $4\frac{1}{4}$ lbs.; and the goose is distinguishable externally only by her somewhat inferior dimensions.

Young birds in their first plumage lack the white patches on the sides of the neck, but have conspicuous light edges to the lesser wing-coverts; while the goslings in down are dark grey above and greyish white



MOUNTED IN THE ROWLAND WARD STUDIOS

BRENT GOOSE.

beneath, with the cheeks and throat whitish. In the typical form of the brent goose the abdomen is dark grey in its anterior part, but there is a variety in which this is white. According to some writers, these two forms are not even racially, let alone specifically, separable, as transitional specimens are said to be not uncommon; but recent opinion tends to regard them as distinct, in which case the light-bellied form should be known as *B. glaucogaster*. Be this as it may, it appears that while the dark-bellied form is the commoner in Novaia Zemlia, Spitzbergen, and Kolguev, the white-bellied phase is the prevalent one from Greenland to the Parry Islands, and in eastern North America in winter. Eastwards the brent is known to range as far as the Taimyr Peninsula in Siberia, but as the Pacific is approached it is replaced by the closely allied *Branta nigricans*, characterised by having the abdomen nearly as dark as the breast. A goose shot in Norfolk in 1907 has been referred to the American form.

The most northern Arctic lands appear to form the breeding-resorts of the brent goose; the British Museum possessing specimens of the eggs from Grinnell-land, Greenland, and Spitzbergen. To the British Islands the species is only a winter-visitor, arriving from the end of September onwards, and usually departing by April. Although comparatively uncommon on the coast of both Scotland and England, as well as on the southern shores of the latter, on the west side of Great Britain, and likewise in Ireland, the brent goose is one of the most abundant, as well as being the smallest, of the wild geese. Indeed, in Ireland it is the commonest wild goose next to the white-fronted species. On the west coast of Scotland, on the other hand, the barnacle goose is by far the commoner of the two species of sea-geese.

From its habit of feeding largely in shallow water on grass-wrack and other seaweeds, the brent goose is known locally as the rut (= root) goose. This vegetable food is, however, supplemented to some extent by small shell-fish and crustaceans. The nests, in Arctic America, are stated to be placed in hollows on the sloping hills between the sea and the snow-line, and are constructed of grass, moss, and saxifrage-stems, with an abundant lining of down. In the latter part of June each contains four or five creamy-white and somewhat glossy eggs, the length of which ranges between just over $2\frac{1}{2}$ and a fraction short of 3 inches.

The red-breasted goose (*Branta ruficollis*), which breeds in Siberia and winters in the Caspian Sea, is only an occasional straggler to Great Britain, and is apparently unknown in Ireland, one reputed instance of its occurrence in the latter island not being recognised by recent

authorities. Exclusive of this, there appear to be only a dozen authenticated records of the occurrence of this species in Great Britain up to the year 1900, two of these dating from the eighteenth century. In two of these instances a couple of birds were recorded. The species is easily recognised by its black upper-parts and the bright chestnut of the lower part of the throat and the sides and fore part of the neck.

Most specimens of the Canada goose (*Branta canadensis* inclusive of the nearly allied *B. hutchinsi*) met with in this country have in all probability escaped from captivity, but an example recorded from the Outer Hebrides in 1903 may perhaps have been a truly wild bird.

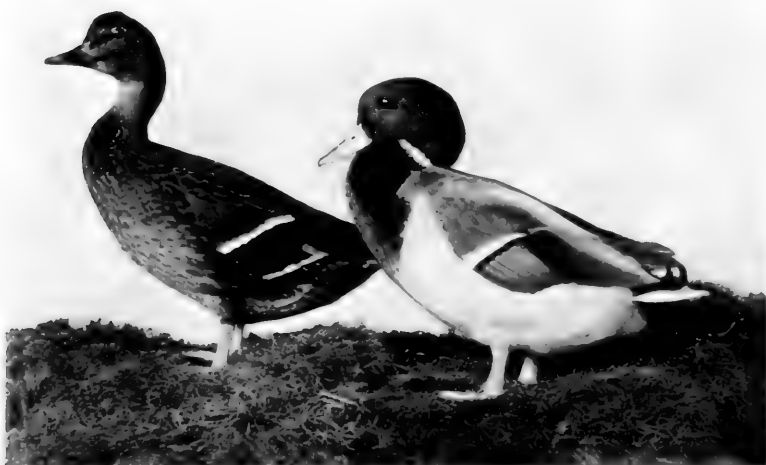
As to the Egyptian goose (*Chenalopex aegyptiaca*) and the spur-winged goose (*Plectropterus gambensis*), which is also African, there can be little hesitation in refusing to admit either to a place in the list of occasional stragglers to the British Islands.

Mallard or Wild Duck (*Anas boschas*). With the mallard (a name properly applicable only to the drake of the species), or wild duck, we reach the typical representative not only of the entire order, but likewise of the sub-family *Antinæ*, which is here taken to include the pochards as well as the more typical ducks.

The members of the *Anatinæ*, as distinct from the geese on the one hand and from the mergansers on the other, are best distinguished by the circumstance that in the drakes the lower end of the windpipe is usually expanded so as to form a large bladder-like bony chamber, while the legs, which are set relatively far back, are adapted for swimming rather than for walking, and the plumage of the two sexes is in most cases markedly dissimilar for the greater part of the year. An unimportant character not unfrequently found in the members of the group is the presence of a lobe of membrane of variable width on the under side of the hind-toe. Again, in the majority of species the exposed portions of the secondary quill-feathers of the wing, together with their larger coverts, form a brightly coloured patch often showing metallic tints, known as the "speculum." In all cases the beak is depressed and much expanded at the tip. Most ducks are much smaller birds than geese.

Among those species, like the mallard, in which the drake assumes a special breeding-plumage, there are two annual moults, sometimes (as in the present species) following one another after a very short interval. In the case of the mallard the dull-coloured plumage is worn only for a few months in summer, and thus appears to correspond with the summer or breeding dress of other birds,

although it undoubtedly represents the non-breeding dress of the latter. It is frequently spoken of as the "eclipse-plumage," but this is a somewhat misleading term and tends to obscure the all-important fact that the special gay breeding-plumage is worn for the greater part of the year instead of for only a short period. In this respect, therefore, the mallard and certain other species present conditions just the reverse of those obtaining in most other birds, where the breeding-dress is donned only for a comparatively brief period.



MOUNTED IN THE ROWLAND WARD STUDIOS

MALLARD AND WILD DUCK.

By its founder Linnæus the genus *Anas* was taken to include the great majority of the ducks, but it is now restricted to the mallard and some sixteen other species, of which none are British. Apart from the fact that the number of tail-feathers is from sixteen to eighteen, the main characteristics of the genus as thus restricted are negative rather than positive. The beak, for instance, is not excessively expanded at the tip, neither are any of the tail-feathers markedly longer than their fellows, while there is no chestnut on the inner secondary quills, the wing-coverts are grey without any blue, and the body-plumage is uniformly mottled. There is a bright metallic "speculum," and a double annual moult.

A fine mallard will measure 24 inches in length and will weigh as

much as 3 lbs. while the duck will scale about $\frac{1}{2}$ lb. less. As regards colouring, the mallard in breeding-plumage is specially characterised by the green head and neck, the white ring round the latter, and the upwardly-curved black tail-coverts glossed with green. Below the neck-ring, extending to the upper part of the breast, is a band of dark chestnut; on the middle of the back the feathers are dark brown passing posteriorly into black; those of the scapular region and flanks are finely laced with black and grey wavy lines; the greater wing-coverts show sub-terminal white bars with black tips, which form a double band across the front of the "speculum"; the latter being green shot with purple and steely blue and bordered behind (as in front) with white; the middle of the breast and the abdomen are grey finely laced with wavy ash-coloured lines, and the under tail-coverts are black. When in non-breeding plumage, the drake is very similar to the duck, from which it may, however, be distinguished by the darker crown and back, the latter being nearly black near the tail, and the crescentic markings on the fore part of the breast. At all seasons the duck has the head and neck brown streaked with dusky, the feathers of the upper-parts brown with light brown borders; the breast wood-brown with dusky oval central areas to the feathers; the "speculum" duller than in the drake; and the under-parts yellowish buff, except the under tail-coverts, which are whitish with dark streaks down the middles of the feathers. Young birds are similar. The down of the duckling is umber-brown above and yellowish white beneath.

The geographical range of the mallard includes the whole of the temperate regions of the northern hemisphere; but in many localities a certain proportion (in some cases perhaps all) of the birds migrate southward in winter. At that season, for instance, a large number of wild ducks from Central Asia visit the plains of upper and central India, whereas the species breeds only in Kashmir and the Himalaya. Similarly, many wild ducks arrive in the southern parts of the British Isles from the north for the winter, although others remain throughout the year and breed. In Europe the breeding-range includes Iceland in the north and Greece in the south. Northern Scotland apparently is too cold for these birds to remain throughout the winter.

In the south of England wild ducks mate as early as March, and even in the northern counties early in April. Usually the nest is built in reeds by the water, but instances are not unknown—they have happened in the London parks—of wild ducks breeding in trees or in ivy, when the ducklings are carried down one by one on their mother's back to the water. So soon as the full clutch of eggs, which varies

from ten to a dozen, or even sixteen, is laid, the drake deserts his partner, and commences to shed his breeding-plumage. Careful observations made many years ago show that in Yorkshire the breast and back of the drake begin to change colour about May 24; by June 23 the head and neck have lost nearly all their green feathers, and by July 6 the full non-breeding plumage, similar to that of the duck at all seasons, has been acquired. A month later this dull garb begins to show signs of change, and by the second week in October the brilliant breeding-plumage will once more have been resumed. During the first month, when the flight-feathers are alone shed, the bird is unable for a time to fly; as is apparently the female when she undergoes her single moult in the autumn.

From the short period during which the non-breeding plumage is worn, it would seem as though the mallard were on the way to become a bird in which the breeding-dress is retained throughout the year; and from this the suggestion naturally arises that many, if not all birds with permanently brilliant plumage, such as parrots, have entirely discarded their original type of plumage in favour of a dress at first assumed only for the breeding-season.

In common with gadwall and teal and other allied species, mallard have a habit of feeding in shallow water by plunging the head and neck downwards and leaving the hind part of the body standing vertically up from the water. The present species, which is the most abundant of all the wild ducks in the British Isles and western Europe generally, haunts streams, rivers, marshes, estuaries, and even the sea-coasts, where it subsists chiefly on vegetable substances, although it will also devour fishes, frogs, snails, crustaceans, insects, etc. In its domesticated descendants this partially omnivorous habit has become much more developed. Mallard can dive as well as swim, and the pace at which they fly is known to every sportsman. Despite the fact that they do not share the special protection in this country extended to the game-birds, wild duck, although less numerous than formerly, still breed in considerable numbers in many parts of our islands, while there seems no diminution in the numbers of the flights from the north by which they are annually reinforced in winter.

Gadwall
(*Chaulelasmus*
streperus).

The name gadwall has been supposed to be derived from "gabble," and the derivation has apparently given rise to the Latin designation *streperus*. This title appears, however, to be a misnomer, as the species is said to be unusually silent—for a duck. From the mallard

and its kindred the gadwall is distinguished by features of merely secondary importance ; and it may be questioned whether its separation as a distinct genus is justifiable. The beak, for instance, although relatively smaller, is of the same shape as in the mallard, but has the transverse plates somewhat more developed and projecting slightly beyond its edges, while the wing "speculum" is black and white in place of metallic, and there are only sixteen feathers in the tail. The genus is known solely by the present bird and a species from a North American island. Like the mallard, the gadwall has a circumpolar distribution, but in neither hemisphere does its breeding-range extend



GADWALL.

very far north, being limited in the Old World by Iceland and the southern districts of Sweden, and by about the same line of latitude in America. In the latter continent it wanders in winter as far south as Mexico and the Antilles, and its breeding-range in Europe includes Spain, whence it extends through central and northern Europe to Turkestan and eastern Siberia. In winter the Asiatic birds visit northern India, upper Burma, and China ; while many of those inhabiting the colder parts of Europe betake themselves at that season to northern Africa, where some of them follow the valley of the Nile as far into the interior as Nubia. In northern India, where they may be met with in large or small flocks on inland waters of all descriptions, gadwall make their appearance in October and depart northwards in

March. To the British Islands gadwall are chiefly winter-visitors, and are entirely so in Ireland and Scotland, although in certain parts of Norfolk, where they receive adequate protection, they breed in considerable numbers.

From 2 lbs. to about 2 lbs. 6 ozs. is the usual weight of a full-grown gadwall, of which the total length is 22 inches. The species is one of those in which the drake reverts to the duller plumage after the breeding-season for a short period. When in breeding-dress, the gadwall is specially characterised by the chestnut wing-coverts and white wing-patch; the head and neck being brown flecked and spotted with black, the back and flanks marked with coarse, wavy lines of black and white, the feathers of the upper part of the breast variegated with closely arranged alternating crescents of the same, and the rest of the breast and under-parts white. When "in eclipse" the drake is distinguishable from the duck by the darker colour of the beak and the chestnut wing-coverts. As regards the duck, the general colour of the upper-parts is brown, barred and freckled with sandy buff; but the most distinctive feature is her white wing-patch. In both sexes the legs and feet are dusky orange and the beak is blackish. Dark brown is the prevalent colouring of the duckling, which is specially characterised by the presence of a broad white stripe above the eye, and of a dark stripe running backwards from the root of the beak to the eye and thence along the side of the head.

As regards their call-note and their food, gadwalls are very similar to mallards; but on the wing they travel with still greater speed. Their flesh is of very inferior quality, and at times not even fit for table. The nest, which, as already mentioned, is seldom seen in England, consists of a slight hollow in the ground, sparsely lined with dry grass, sedge, or rush, and occasionally leaves; the whole being well concealed amid a tussock of rank marsh-grass or in a bed of rushes. From buffish to creamy white is the colour of the eggs, which range in number from eight to a dozen, and measure severally between 2 and $2\frac{1}{4}$ inches in their longer diameter.

Teal (*Nettion crecca*)

Described in many works under the name of *Querquedula crecca*, and in others as *Nettion crecca*, the teal is the smallest of the British ducks, measuring only from 14 to 15 inches in length, and with a weight of not more than from 12 to 14 ozs. What it lacks in size it makes up, however, in beauty and in the excellence of its flesh; although to fully appreciate the latter point requires a sojourn in India, where these

birds are caught in large numbers and kept in confinement for the table during the cold season. All the species of the genus (which has a world-wide range) are small, and in most the colouring of the sexes is different. From the mallard and its kin they differ by the smaller number of tail-feathers, which are usually fourteen or sixteen; while they are distinguished from the gadwall by the beak being narrower, with less prominent transverse plates, and by the coloured wing-speculum. The upper wing-coverts are ashy grey.

The drake is a really handsome little bird, with the bright chestnut head and neck set off by a broad area of dark metallic green, bordered above, in front, and below by a narrow white line, and extending backwards from the eye on to the neck.

In marked contrast to this is the mottled grey hue of the back and flanks, caused by the presence of a number of very fine black and white lines; the fore part of the breast is creamy with black spots, and the remainder white; green and purplish black characterise the "speculum" of the wing, which is



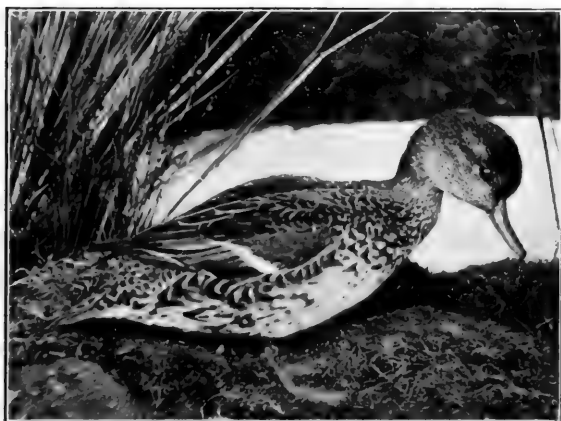
MOUNTED IN THE ROWLAND WARD STUDIOS

TEAL (DRAKE).

bordered in front with buffish and behind with pure white; while the under tail-coverts have the middle black, a patch of bright buff on each side, and a black bar across the base. When in the non-breeding plumage, the head and neck of the drake change to brown (becoming almost black on the crown); the fore part of the back is dusky barred with buff, although retaining a few of the finely lineated feathers; and the tail-feathers are pale chestnut spotted with black and buff. At all seasons the head and neck of the duck are wood-brown, more or less spotted with black; the feathers of the back and flanks being dusky margined with brown, and the wing-patch lacking the buffish-white front border of the drake. Young birds resemble their female parent. In the duckling the down of the upper-parts is brown passing into buff on the forehead and throat, with a dark brown streak running from the forehead to the crown, and a pair of similar streaks from each eye backwards to the nape of the neck.

The non-breeding plumage of the drake is acquired about June, and retained till October; and during this period it is exceedingly difficult to distinguish the two sexes, although the drake has a more lead-coloured head, without a pale streak above the eye.

Although occasionally wandering to Greenland and the eastern United States from one side of the Old World, and to Alaska from the other, the teal, unlike the mallard and gadwall, is properly restricted to the eastern hemisphere, where it extends from Iceland across northern Europe and Asia to Bering Island, with latitude 70° as the approximate limit of its breeding-range. Southwards teal have been found nesting in the Azores and Madeira, although sparingly; and



MOUNTED IN THE ROWLAND WARD STUDIOS

TEAL (DUCK).

in southern Europe generally these little ducks are much less abundant during the summer than they are in more northern countries. On the other hand, in the winter months teal visit the Mediterranean countries, south-eastern Asia, India, Ceylon, Burma, and China in vast numbers. Even the British Isles come within the limits of the area in which

teal are more numerous in winter than in summer, although many of these birds breed in all parts of the United Kingdom, but more especially in the north. A nest has been recorded from the Isle of Lewis in the Hebrides.

In India the great rush of teal takes place in October, and these birds remain in the plains till the following April. Both in India and in the British Isles teal in winter may be found on inland waters of all descriptions in small parties, or, more rarely, in pairs, singly, or in large flocks; sometimes associating with wigeon and mallard, although even then keeping more or less to themselves, but on other occasions quite alone. Although their usual note is of the type common to the duck-tribe in general, but more subdued than in most other species, teal also utter a low whistling sound, more frequently heard at night

than in the daytime. On the wing teal are extremely swift, and when in company with other ducks they generally rise separately. Water-plants constitute their chief food. In summer these birds are generally found singly in small pools amid the marshes, and the nest, which is of the type characteristic of the duck-tribe in general, is not infrequently found at a considerable distance from the water, to which, it is believed, the ducklings are sometimes carried one by one on their parent's back. Of the eggs, which in Scotland are commonly laid in May, from eight to ten go to form a clutch. Although generally smaller—the larger diameter being less than two inches—they are practically impossible to distinguish from those of the garganey; so that the only method of discriminating between the nests of the two species is by the colour of the down in which the eggs are packed, this being sooty or chocolate-brown in colour, with a white central star and a pale brown tip to each filament, in the present species.

As the European teal occasionally wanders to the western hemisphere, so it is probable that a few individuals of the American green-winged teal (*Nettion carolinense*) may sometimes reach the British Isles, although it does not appear certain that the individuals recorded there may not have escaped from captivity. One such specimen is stated to have been secured in Yorkshire in 1852, but no particulars were taken; a second was recorded from Devonshire in 1879, and a third in Hampshire in the following year. The bird may be distinguished from the ordinary teal by the presence of a whitish crescent on each side of the upper part of the breast, and by the indistinctness of the white border to the green face-patch.

Wigeon (*Mareca penelope*).

The name wigeon, it has been suggested, may be derived from an old French word *vigeon*, stated in *Larousse's French Dictionary* to be the name of an American bird. Be this as it may, the wigeon is the typical representative of a genus of three species which may be distinguished from the teal by the greater relative size of the "nail" at the tip of the beak; this being more (instead of less) than one-third the width of the latter. The beak itself is small, being shorter than the head, depressed and slightly narrowed towards the tip, while the wings are long and pointed; the tail is short, with the fourteen outer feathers pointed and the middle ones slightly elongated; the front of the shank of the leg is covered with shield-like scales; and the hind-toe is small with a narrow lobe.

The wigeon-drake, which measures 18 inches in length and

weighs from $1\frac{3}{4}$ lbs. to 2 lbs., is readily distinguished when in breeding-plumage, as it is for the greater part of the year, by the large white patch (not to be confused with the "speculum") formed by the wing-coverts, the white crown with a tinge of buff, the rich chestnut, deepening into black on the throat, of the rest of the head and the neck, the grey back and flanks marked with narrow black and white wavy lines, the bright metallic green wing-"speculum" bordered in front by a black bar formed by the tips of the greater coverts and above by two white bars constituting the outer



MOUNTED IN THE ROWLAND WARD STUDIOS

WIGEON (DUCK AND DRAKE).

edges of the innermost secondaries, the cinnamon-tinged chestnut of the upper part of the breast, the white of the rest of the under-parts, with the exception of the black under tail-coverts, and the pale blue beak tipped with black. From July to September the drake reverts to the non-breeding plumage, when he is distinguishable from the duck merely by his deeper colouring, especially on the fore part of the breast and flanks, which are mahogany-red, and the retention of a few of the black-and-white-lined feathers of the back. In the duck, at all seasons, in addition to the white wing-patch, the head and neck are wood-brown spotted with black, the feathers of the back dark brown with pale margins, the wing-coverts dusky with white edges, the "speculum" greyish green, the flanks of a richer brown than the neck, and the tail-

coverts brown with dusky bars. Young birds differ from the adult females by the absence of the pure white wing-patch at the tips of the secondaries. In the duckling the down of the upper surface is uniformly brown, while the cheeks and throat are bright orange.

In the main the wigeon is a winter-visitor to the British Isles, where it arrives in large numbers, and is one of the most abundant representatives of the duck-tribe. Nevertheless a certain number remain to breed in the northern counties of Scotland, and a few do the same in Ireland.¹ From October to the middle of November is the season during which the bulk of the winter influx of wigeon makes its appearance on the British coasts; and on arrival the flocks either remain on the seashore, where they feed largely on one particular kind of seaweed, or betake themselves to inland lakes, when their food consists partially of grass and water-plants and partially of various invertebrate animals. When on land, wigeon differ from most other ducks in grazing after the fashion of geese; and they are further characterised by the loud whistling call of the drakes and a kind of purring note uttered by the ducks when the flocks are settling down on the water, although when feeding the splashing made by their busy beaks takes the place of the vocal sounds. When in good condition, wigeon make excellent table-birds, although at times their flesh may be rank and fishy. The eggs, which seldom exceed from seven to half-a-score in a clutch, are of about the size of those of gadwall, measuring from 2 to $2\frac{1}{4}$ inches in length. The down in which they are embedded is mainly dark chocolate-brown, the whitish central spot and terminal fringe of each filament being inconspicuous. The nest itself, which is very deep, is generally placed close to water, amid grass or sedge, often under the protecting shelter of a dwarf willow, and is constructed of dry grass and sedge.

The wigeon is one of the most northerly breeders of all the more typical ducks, Iceland and Lapland being favourite nesting-resorts, whence the breeding-range extends right across Arctic Europe and Siberia to the peninsula of Kamchatka. Nests have, however, been taken on the lower course of the Danube, as well, it is said, as in Germany and France. In winter wigeon range as far south as Madeira, Abyssinia, northern India, Burma, and China, occasionally straggling even farther in the same direction. From Kamchatka they extend into Alaska, and thence down the coast to California, while a few unusually venturesome individuals brave the terrors of the Atlantic and reach the eastern United States in winter.

¹ Cottney, *Zoologist*, 1901, p. 269.

The other two representatives of the genus *Mareca* are American. Of one of these, commonly known as the American wigeon (*Mareca americana*), a specimen



MOUNTED IN THE ROWLAND WARD STUDIOS

AMERICAN WIGEON.

was purchased in Leadenhall Market, London, in the winter of 1837-1838, while a second was obtained from a game-dealer's shop in Leeds in 1885. Other reputed occurrences of the species in the British Isles up to the close of last century are untrustworthy. From the true wigeon the American species may be distinguished by the whitish crown of the

head, the whitish sides of the head and neck marked with black spots, and the presence of a green patch extending from behind the eye to the nape of the neck.

Pintail (*Dafla acuta*).

Pintail, or, to give them their full title, pin-tailed ducks, form a well-defined group, with one northern and two southern representatives, specially characterised by the great elongation and slenderness of the middle pair of the sixteen tail-feathers; a rudiment of this feature occurring in teal. The whole bird is of an elongated build, with a specially long neck; the beak being rather narrower than in the mallard, and somewhat wider at the base than at the tip, while the wings are long and pointed. The European pintail is one of the larger ducks, the drake measuring from 22 to 29 inches long, and weighing from $2\frac{1}{2}$ to $2\frac{3}{4}$ lbs., while the duck scales about 2 lbs.

The elongated middle tail-feathers render the pintail drake an unmistakable bird, but another distinctive characteristic when in the breeding-dress (which is worn for about nine months of the year) is the conspicuous white stripe along each side of the neck. As regards the rest of their plumage, the head and neck are rich brown, darker on the crown of the former and the back of the latter than elsewhere, with a sheen of purple and bronze; the back and

flanks are white, with fine black wavy lines, forming the type of pattern technically known as "vermiculated"; the greater wing-coverts are tipped with reddish buff and white, which make the front border of the dark "speculum" of the wing, and the under-parts, with the exception of the velvety black lower tail-coverts, are white. A black line traverses the middle of the otherwise wholly grey beak. In the non-breeding plumage, which is worn during July, August, and September, the drake approximates to his partner, from which, however, he may be distinguished by the brown head and neck,



MOUNTED IN THE ROWLAND WARD STUDIOS

PINTAILS (DUCK AND DRAKE).

spotted and flecked with white, the dusky tone of the back, where each feather is crossed by a narrow transverse buffish white bar, and by the retention in this region of more or fewer of the "vermiculated" feathers of the breeding-dress. In the duck the head is dark brown—darkest on the crown—flecked with black streaks; the back is dusky, with broad transverse white and buff wavy barrings, the secondaries and greater coverts are tipped with white so as to form two narrow wing-bars, there is no distinct wing—"speculum," or merely a gloss of bronzy green in its place, the flanks are brown, with broad white horse-shoe-like markings, and the under-parts whitish, heavily flecked with brown. By the long neck, white wing-bars, and buff-barred tail-feathers, the female is easily distinguished from any other duck. Young birds in their first plumage are like their female parent, and the downy duckling may be recognised by the white streak above each eye.

The pintail ranges over the greater part of the northern hemisphere, but breeds chiefly in the neighbourhood of the Arctic Circle, although the breeding-area is said to descend locally as far as latitude 50°. In winter it ranges as far south as northern Africa, Asia Minor, India, Burma, Ceylon, and China, and in America to the West Indies and Panama. To the British Isles, where it arrives in October or November and remains till March, the species is chiefly a winter-visitor. There are, however, two records of its nesting in Ireland in former years, and it still breeds occasionally in the north of Scotland and the Isles. A nest has, for instance, been taken on the mainland in Sutherlandshire, while four were discovered some years ago on Loch Leven; in the Inner Hebrides a nest was discovered in 1881, and quite recently a nest with a clutch of nine eggs (which hatched on June 5) was recorded from the Orkneys.

Unlike the mallard and most other British ducks, the pintail makes its nest quite in the open, without any protecting shelter from grass or reeds, and usually places it on the moor or tundra in the neighbourhood of a lake, tarn, marsh, or river. As a rule, there are from seven to ten eggs in a clutch; and although they have the same greenish-buff tint, they may readily be distinguished from those of the mallard by their more elongated shape. In the case of the mallard, for example, the eggs measure from 2.1 to 2.35 inches in length by 1.6 in breadth, whereas in the present species the former dimension varies from 2.05 to 2.4, and the latter from 1.4 to 1.5. Further aid in distinguishing a pintail's nest is afforded by the circumstance that each filament of the dark brown down with which it is lined has a very conspicuous central white star, but only very indistinct traces of white at the tip.

In some of its winter-haunts the pintail is reputed to show a preference for the coast, but this is certainly not the case in India, where it is commonly found on inland waters. Both in Europe and India the species is sometimes seen in large flocks, which are occasionally composed of drakes alone. In flight the pintail is unrivalled, and the "swirl" of a flock of these beautiful birds as they dash down towards water when once witnessed will never be forgotten. They are largely nocturnal in habit, and in the daytime often select pieces of water where isolated water-plants are abundant. Their food consists of the usual mixture of animal and vegetable substances, "mare's-tail" being, it is said, a favourite element in their diet, while in autumn they will search the stubbles for corn. When swimming, a flock of pintail may be recognised by their long, curved

necks and up-raised tails. Silent as a rule, and wary in the extreme, when alarmed they give vent to a low and soft quack. As a table-bird the pintail is unsurpassed; and even in India, where most ducks are at times more or less uneatable, there is never any fear with regard to the flesh of the pintail.

Garganey
(*Querquedula*
circa).

In the older ornithological works the true teal were included in the same genus as the garganeys, or, as they are often called, summer-teal, or blue-winged teal; but the former are now generally referred to a genus apart on account of many differences in colouring and structure, while they also differ in their habits. As distinctive features



MOUNTED IN THE ROWLAND WARD STUDIOS

GARGANEY (DUCK AND DRAKE).

of the garganeys (of which there are five species, one Old World, two North American, and two South American), may be mentioned the broader and somewhat terminally-expanded beak, of which the edges near the tip are furnished with a soft membrane, and the blue or bluish-grey tint of the upper wing-coverts. In both these respects garganeys approximate to the shovellers. In the white stripe on the side of the neck the garganey drake resembles the male pintail, but in the present species this stripe is extended forwards to include the eye.

Probably from the difference between the sexes, Linnæus gave two names to the garganey, *Anas querquedula* and *Anas circia*; this being so, it seems that the ugly alliteration *Querquedula querquedula*, favoured by some ornithologists, might have been avoided.

The geographical range of the garganey is very similar to that of the pintail, including a large part of Europe and Asia. The present species is, however, a much less distinctly northern bird than the latter, being apparently unknown in Iceland, the Färoes, and at least the more northern Scandinavian countries. Archangel in Europe, and Turkestan and southern Siberia in Asia, form, indeed, the northern limits of its breeding-range. In winter the garganey is to be met with in the Mediterranean countries, India, Ceylon, Burma, China, the Philippine Islands, and Celebes. From the fact of its being a spring and autumn visitor (which sometimes remains for the summer) to the British Isles, the garganey has received its name of summer-teal, in contradistinction to the real teal, which is to a great extent a resident bird. Tempted by the large amount of suitable breeding-places to be met with in Norfolk, Suffolk, Cambridgeshire, Huntingdonshire, and Lincolnshire, a certain number of garganeys remain with us throughout the summer and rear their young in the marsh-lands. In the west of England and the Principality summer-teal are much more uncommon birds, and to Ireland the species is only a very rare and occasional visitor, which generally makes its appearance in March or April, although it has been seen in January and February.

In their mode of flight garganey differ considerably from teal. They also differ in that the drake wears the non-breeding livery for a much longer period, and also in the absence of any distinct "speculum" on the wing of the duck. In fact, the non-breeding plumage of the male is worn well on into the winter, thus showing its real correspondence with the winter-dress of other birds. As regards both these features, the garganey is a far less specialised species than the mallard.

Although garganey are often offered for sale in India as teal, the housekeeper who knows her business will refuse to accept them as such, for their flesh, although good, is far inferior to that of the latter bird.

Measuring fully $15\frac{1}{2}$ inches in length, and weighing about as many ounces, the garganey drake in breeding-dress is readily recognised by the cinnamon neck flecked with white lines, the white eye-stripe, and the pale blue of the upper wing-coverts. Additional features in the colouring of the plumage are the dark brown feathers of the crown of the head and back, the latter with paler edges; the long,

drooping scapulars, black with a white line down the middle; the wood-brown breast, with dark crescentic markings to the feathers; the glossy, greyish-green "speculum" between two white bars, formed by the tips of the secondaries themselves and their greater coverts; the fine grey and white lacing of the flanks, terminating in a double white and grey band, divided by a black line; and the white abdomen, mottled with brown near the vent. In the non-breeding dress the drake is distinguishable from his partner by the feathers of the neck, which remain much the same as in the breeding-costume, and also by the fuller development of the wing-"speculum." The duck is somewhat smaller, and has the crown dusky, the sides of the face and neck pale brown flecked with dusky, the feathers of the back and flanks dusky with pale brown margins, the fore part of the breast pale brown with dusky mottlings, the remainder of the under-parts white, the wing-coverts ashy brown washed with grey, and the "speculum" represented by a touch of bronzy green between two white bars. The downy dress of the duckling is dark brown above and yellowish white beneath, with a broad buff streak above the eye, bordered below and above by a dark stripe.

Although in England generally seen in pairs, garganey in India associate in flocks, frequently of large size, which usually keep to the edges of lakes and marshes, and feed mostly at night; their diet consisting chiefly of various kinds of water-plants. In their rate of flight, which is noiseless, they are decidedly inferior to teal; and their call-note is a somewhat subdued but harsh "quack," common to both sexes, while in the breeding-season the male also utters a louder and more grating cry. Rushes near water form the favourite site for the nest, which at the proper season contains a clutch of from six to about a dozen creamy-white eggs, each measuring just short of 2 inches in its larger diameter.

Examples of the North American garganey, or blue-winged teal (*Querquedula discors*), have been recorded from Yorkshire in 1852, Dumfriesshire in 1858, and Cambridgeshire in 1889; but as the species is frequently imported alive into Great Britain, it is impossible to be sure that these were not "escapes." The American bird is distinguishable by the bright smoke-blue of the upper wing-coverts, and the presence of a crescentic white band between the eyes and the beak in the drake.

Shoveller
(*Spatula clypeata*).

From all other British ducks the shoveller and its relatives are readily distinguished by the great terminal expansion of the beak. As already mentioned, there is, however, a slight approximation to this feature in the garganey, which also agrees with the shoveller in its bluish-grey upper wing-coverts.¹ The beak, which exceeds the head in length, is depressed and flattened, with the tip twice as broad as the base, the edges of its upper half much turned down near the extremity, and the



MOUNTED IN THE ROWLAND WARD STUDIOS

SHOVELLER (DUCK AND DRAKE).

transverse plates very numerous and very long. Both the wings and tail are pointed, and the latter carries fourteen feathers. Four species of shoveller are known, of which all but the present are natives of the southern hemisphere, where the group is also represented by a single species referred to a separate genus, commonly known by the name of *Malacorhynchus*.² In all the members of the group the sexes are widely different in colouring; but the non-breeding dress of the drake is retained for a much longer period than in most of the species described above.

In the case of such an unmistakable bird, description of the

¹ On page 265 of vol. ii. of Sharpe's *Handbook to British Birds* the shoveller is stated to resemble *Nettion* in place of *Querquedula* in this respect.

² This name is preoccupied, and requires changing.

plumage seems almost superfluous, although for the sake of uniformity this is briefly given. The shoveller-drake is a medium-sized bird, measuring about 20 inches in length, and weighing from $1\frac{1}{2}$ lbs. to $1\frac{3}{4}$ lbs. Dark green is the colour of the head and neck, in marked contrast to which is a white gorget on the upper part of the breast encircling the commencement of the back, followed by rich chestnut on the lower part of the breast, and this again by the white of the abdomen; the feathers of the middle of the back are dull black with white margins; the wing-coverts are pale bluish-grey, with the exception of the greater coverts, which are white, and form a bar in front of the green "speculum"; the under tail-coverts are black; the beak is lead-colour; the eye is yellow; and the legs and feet are orange. At the close of the breeding-season the drake assumes the non-breeding dress, when the breast and neck become brown, with spots of a darker shade, and the rest of the plumage, with the exception of the bluish wing-coverts, like that of the drake, which is uniformly pale wood-brown on the upper-parts, with darker centres to the feathers, the wing-coverts varying from grey to greyish brown, and the "speculum" faint. In autumn this plumage begins to be exchanged in the drake for the full breeding-dress, but it is stated that the change is not completed till the following February, either the green feathers of the head and neck or the white of the breast, or both together, not being acquired till that date.¹ If this be correct, the male shoveller is not far removed from the wader-type, as regards the period during which the full breeding-plumage is worn. Young birds resemble the female in general colouring but have the wings brighter. The duckling, whose down is uniformly brown above, is very similar in general appearance to the young of other species, the expansion of the terminal end of the beak not taking place till three weeks or so after hatching.

The shoveller ranges, inclusive of its migrations, over the greater part of the northern hemisphere, although not usually found north of latitude 68° or south of latitude 10° ; but the breeding-area is mainly restricted to the north temperate zone. From this breeding-tract it wanders southwards to Panama, the Mediterranean countries, India, Ceylon, the Upper Irawadi, and China. On one occasion it is stated to have been found breeding in Ceylon, but otherwise it is not known to nest south of the Himalaya. To the British Islands the shoveller is a regular winter-visitor, and a certain number of pairs remain to breed, alike in England, Scotland, and Ireland. It breeds perhaps more numerously in Ireland than elsewhere, nests having been recorded

¹ Blanford, *Fauna of British India—Birds*, vol. iv. p. 453.

from about a dozen counties; and it is reported to be increasing there as a breeding-bird. In England it is known to have nested of recent years in counties so widely sundered as Northumberland, Norfolk, Kent, and Dorsetshire, as well as in others; and Romney Marsh and Hornsea were reputed to have been favourite breeding-places in former times. Several counties on the Scottish mainland are also known to contain nesting-resorts of the shoveller; and the species likewise breeds on the island of Tiree, off the Argyllshire coast, while in 1903 it was ascertained that it nested in Uist in the Outer Hebrides.¹

In one instance it has been recorded that the duty of incubation was undertaken, at least to some extent, by the drake, and if authenticated this can scarcely be a solitary example; but for the most part writers are silent on this point, although some of them mention the occurrence of both sexes in the neighbourhood of the nest. The bird appears to have a remarkable power of adapting itself to circumstances in the matter of the time at which it nests, as indeed must necessarily be the case with a species whose breeding-range in America extends from Texas in the south to the interior of Alaska in the north. When the young are hatched, they are tended in a most careful manner by the female bird.

The flight of the shoveller has been compared to that of teal, although it is much less rapid and characterised by a peculiarly irregular and hesitating style. These ducks are essentially freshwater birds, and in the winter are to be found singly, in pairs, or in small parties on the edges of lakes and marshes, or even, at least in India, in village pools of the most filthy description. Indeed, the peculiar conformation of its beak is a special adaptation for feeding in soft mud, slime, and dirty water generally. A shoveller never probes in shallow water with its head downwards and its tail in the air; but the species is said to have the habit of taking up its station on water in which pochards are diving so as to take advantage of the vegetable substances which rise to the surface after having been torn up from the bottom by the latter. As a rule it is a silent bird, although now and then uttering a few feeble "quacks." The nest, which is made of grass, with little lining other than down, is usually placed in a tussock of rank grass or heather; and at the proper season contains a small clutch of five or six buffish or greenish white eggs, each of which measures from 2 to $2\frac{1}{4}$ inches or thereabouts in length. The down is dark brown with a very indistinct light tip to each filament, but a

¹ Harvie-Brown, *Ann. Scott. Nat. Hist.*, 1903, p. 245.

conspicuous central white star. Although one American ornithologist writes favourably of the shoveller as a bird for the table, the general opinion, especially in India, is that in this respect the species is the very worst of all the duck-tribe.

Sheldrake (Tadorna cornuta). As regards the colouring of the plumage the sheldrake presents us with a species which has gone a step farther than the mallard in specialisation, for not only does the drake retain its breeding-plumage throughout the year, but the duck has acquired a similar type of colouring, although slightly duller in tone. In the case of the female the reason for this



MOUNTED IN THE ROWLAND WARD STUDIOS

SHELDRAKE (MALE).

specialised feature is not far to seek, for, as indicated by her name of "burrow-duck," she lays her eggs deep down in a tunnel in the ground, and therefore has no need of a protective resemblance in her plumage to her surroundings. Hence, what is commonly known as sexual selection has been allowed full play, with the result that the female sheldrake has acquired a plumage only a little inferior in gorgeousness to that of her lord. As regards the total loss of the original dull non-breeding dress of the duck-tribe by the male sheldrake, it appears that the bird does not shed all its flight-feathers simultaneously,¹ and consequently does not require that protective type of colouring so essential to the mallard during the time that it is deprived of the power of flight. It may be added that the colouring

¹ See a letter in the *Field* of December 16, 1905.

of the sheldrake presents a very marked approximation to that of the male shoveller in breeding-dress, which may probably be taken as an indication of a more or less close affinity between the two species, despite the difference in the form of their beaks.

The head and upper part of the neck of the male sheldrake, for instance, are glossy green like the same parts in the shoveller; this being followed in both birds by a white gorget round the lower half of the neck, succeeded by chestnut on the upper portion of the breast, and this again by white on the abdomen. The main differences between the two birds in this respect are indeed that in the sheldrake the white gorget is much wider on the back of the neck, and that the chestnut area does not extend on to the lower part of the breast, which is white, like the abdomen. As if to make up for this, the chestnut forms a complete band round the fore part of the breast and back in the sheldrake, and also runs down the middle line of the abdomen. As regards the rest of the colouring of the present species, the scapulars and primary quills are black, the wing-"speculum" is deep glossy green, while the lesser wing-coverts and the greater part of the back are white, and the tips of the tail-feathers black.

A peculiar feature of the male sheldrake is the presence of a fleshy knob at the base of the beak, which gives origin to the name of *cornuta*, and is one of the characteristics of the genus. And here it may be well to mention that the other distinctive features of the genus *Tadorna* are to be found in the relative sharpness of the beak, which is high at the base, and concave in profile, with the tip flattened and bent upwards, and the "nail" small and suddenly curved downwards and inwards. The nostrils are less than one-third the length of the beak, measured from the base; the wings are long and pointed, but the tail, which has fourteen feathers, is rounded; while the lower part only of the front of the shank of the legs carries large shield-like scales.

To complete the brief sketch of the colouring of the male bird, it has to be added that the whole of the beak is bright cerise, and that the legs and feet are flesh-pink. In addition to the lack of the knob at the base of the beak the duck differs from her partner by her somewhat inferior bodily size and the duller tone of her colours. In young birds, which also lack the beak-knob, the dulness of hue becomes still more noticeable, the head and neck being dusky with white mottlings, the scapulars also mottled with white and tinged with brown, the chestnut of the breast only partially developed and mingled with blackish, the beak flesh-coloured, and the legs and feet leaden. Except for its brown back and crown of the head, the downy duckling is white.

Now that the brahminies are separated as a genus apart, the sheldrakes form a peculiarly isolated type, represented only by the present species, which ranges over the greater part of northern Europe and Asia south of the Arctic Circle in summer and migrates to the Mediterranean countries, northern India, China, and Japan in winter, and by an allied Australian kind.

In length a sheldrake measures about 26 inches, and weighs from $3\frac{3}{4}$ to 4 lbs., so that it is one of the largest ducks.

The name of the species refers to its parti-coloured plumage, and has nothing to do with the word "shield." As regards its scientific titles, the bird will be found designated in some works *Tadorna vulpanser*, and in others as *Tadorna tadorna*.

The sheldrake differs essentially from the shoveller in that it is a bird of the seashore; it is also a much more abundant, although local, resident British species, occurring on most parts of the coasts, and breeding in such localities as are specially suited to its somewhat peculiar habits. The number of resident British birds is, however, considerably reinforced during the winter-months by arrivals which seek the hospitality of our coasts from the far north; these migrants frequently taking up their quarters in localities where the species is unknown in summer. In all three divisions of the United Kingdom the sheldrake nests locally; the breeding-range including the Outer Hebrides, as well as a number of localities on the Irish coasts, where, however, the species is by no means common during the summer months. In some places where these ducks habitually nest, especially on the west coast of Scotland, it is the practice of the peasants to take such clutches of eggs as they can find and set these under hens, when large broods are frequently reared.

On account of the facility with which the soil can be tunnelled, sheldrakes generally select sandy shores for their summer resorts. In such spots the nesting-burrow, which is reported in many instances to be the work of the birds themselves, is frequently not less than four or five feet in length, and may occasionally extend to as much as a dozen. Where, however, empty rabbit-holes are ready to hand, as they are on many dunes of sand on the coast thickly overgrown with sword-grass, the birds are not slow to avail themselves of such free lodgings; and in at least one locality in Scotland sheldrake have been known to nest in rabbit-burrows amid a clump of trees at a considerable distance inland. Neither is the neighbourhood of salt-water absolutely essential, for these birds have been observed in Ireland breeding on the shores of Lough Neagh, whose waters are fresh. In the absence of sand, peat,

as in some of the Scottish Isles, serves as the medium in which to drive the tunnel; while when even this is wanting, as in some parts of the Hebrides, the birds are perforce compelled to nest in holes and crannies amid rocks; and it is stated that they have been known to breed on cliffs at such a height above the shore that it seems almost certain the ducklings must be carried down to the water on their mother's back. During the laying-period the two sexes keep together, and may then be seen flying in circles round the nesting-burrow, into which the duck will suddenly make a dive with such rapidity that the onlooker wonders where she has disappeared. Shell-fish, shrimps, small crabs, etc., supplemented by a certain amount of vegetable matter, form the main diet of the sheldrake; and this diet doubtless accounts for the rank and fishy flavour of its flesh. For the greater part of the year these ducks are found singly, in pairs, or in trios, and only rarely in flocks. After the eggs are all laid the drake apparently forsakes his partner for a time. On land sheldrake walk well and rapidly; but they are comparatively poor performers in the air, their flight being heavy and laboured, more like that of swans than of ordinary ducks. Both sexes utter a harsh "quack"; but in the breeding-season the drake gives vent to a clear rapid note, frequently used as an alarm-cry when the parents are with their offspring. Dull creamy white is the colour of the eggs, of which from seven to a dozen are usually found in a clutch, although so many as sixteen have been recorded. If the nest be robbed, the duck will go on laying; and in Denmark, where these birds are induced to lay in burrows prepared for them by the peasants, it is stated that so many as thirty eggs have thus been obtained from a single female. Although a few dead leaves may occasionally be added, the lining of the nest is formed as a rule almost entirely of the down of the parent birds; this down being ashy grey in colour with silvery white tips to the filaments. In length the eggs vary from slightly more to slightly less than $2\frac{1}{2}$ inches.

Ruddy Sheldrake, The bird commonly known in Europe as the ruddy
or Brahminy Duck sheldrake is, as a rule, such a rare visitor to the
(*Casarea rutila*). British Isles that it has apparently no vernacular
name of its own. In earlier days it was generally
included in the same genus as the true sheldrake, under the name of
Tadorna rutila; and when that course was adopted the objection to
the title ruddy sheldrake was less marked than it is at present. Now,
however, that this bird is made the type of a genus by itself—some-

times under the designation *Casarca casarca*—it would be much better if it had an entirely distinct English name, more especially as it is practically a uniformly coloured, and not a parti-coloured ("sheld") bird. In India it is universally known as the brahminy duck, and it would be much better if this name were generally recognised in Europe as the proper title of the group.

In general characters the brahminy ducks (of which there are four species) agree very closely with the sheldrakes, properly so called. They have, for instance, a short and rounded tail of fourteen feathers.

On the other hand, the beak shows little concavity in the profile of its upper half and is thus nearly straight, while the "nail" is less hooked inferiorly. In the case of the present, and typical, species there is but slight difference in the colouring of the two sexes, and little seasonal change in this respect in either sex; but this is not a constant characteristic of the genus,

since in the other three species (all of which are natives of the southern hemisphere) the sexes are wholly different in colouring, and in one of them at least the drake has a distinct non-breeding plumage. This is very interesting, as it indicates the specialised character of the northern representative of the genus.

In the typical species the general colour is tawny chestnut in the male, lightest on the head and darkest on the under-parts; in the breeding-season the neck has a narrow black collar, and the lower part of the back is marked by a narrow dusky grey line, passing into black glossed with green on the tail; the rudiments of a wing—"speculum" are represented by a wash of green and bronze on the outer webs of the secondary quills; and the back and legs are black, and the eyes nearly so. The black collar, which is developed in March, disappears



MOUNTED IN THE ROWLAND WARD STUDIOS

RUDDY SHELDRAKE.

in November, and may thus be regarded as the supreme development of the breeding-dress ; the original non-breeding dress having probably been altogether lost. The duck is rather smaller than the drake, has no black collar, and is rather duller in colour, with a tendency to white on the head. Young birds are still more dingy ; the downy chick resembles that of the sheldrake. A couple of feet is the average length of the full-grown drake of this species.

The brahminy is a duck whose breeding-range is restricted to the warmer parts of the north temperate zone, inclusive of the Mediterranean countries, and Western and Central Asia. During the breeding-season these handsome ducks are very numerous on the great lakes, such as the well-known Pangong and Tso-Morari, of Ladak and Tibet. From these breeding-places the brahminies migrate south in winter to the plains of India, the Irawadi valley, China, Japan, and, rarely, Ceylon. October is the month in which these birds make their appearance in the plains of India, whence they depart again for the lands beyond the Himalaya in the following March in the southern districts of the peninsula, although lingering a few weeks longer in the Punjab and other northern provinces. To the British Isles the brahminy can be considered only as a rare and occasional straggler, and up to the year 1892 only some sixteen records of its occurrence (exclusive of a few which are known to have been based on the escape of captive specimens) appear to have been chronicled. These sixteen records are spread over all three kingdoms. In 1892, on the other hand, very considerable flights of these ducks reached the British Islands, flocks of from ten to fourteen head, and, in one instance, as many as a score, having been observed in several parts of the country between June and September. No satisfactory explanation of this remarkable immigration has hitherto been given ; the theory that the birds had lost their way being scarcely admissible.

May and June are the breeding-months of the brahminy, which in winter is a familiar bird to residents in the plains of India, where it is to be seen, generally in pairs, on sand-spits and banks in all the larger river-valleys, as at this season it but seldom takes to the water. Indeed, when out shooting, the metallic two-syllabled alarm-cry of these birds is almost constantly striking the ears of the sportsman ; and the bird may almost be regarded as an integral feature of an Indian winter landscape. Its food consists largely of grass and the tender shoots of cereal crops, which are grazed in goose-fashion, but also comprises shell-fish and crabs. The flesh is of very inferior quality.

All the members of the duck-tribe are very prone to interbreed

with one another; of the majority of these crosses space prevents mention in the present volume, but reference may be made to one very remarkable instance of such interbreeding. In 1903 a female ruddy sheldrake mated with a male Egyptian goose (*Chenalopex ægyptiaca*), the result being a hybrid gander, which in its turn paired with the ruddy sheldrake. The original hybrid was very similar in its call and habits to the Egyptian species, although in plumage it was more like a female brahminy, with the exception of the tail, which resembled that of the former species.

**Red-crested
Pochard (*Netta
rufina*).**

All the preceding representatives of the duck-tribe obtain their food, when in the water, by swimming on the surface, in many cases, as already noted, by plunging their heads and necks vertically downwards, and elevating the hind part of the body into an erect posture. Hence they are collectively termed surface-feeding ducks. With the red-crested pochard (pronounced pockard) we come to the first representative of a group which obtain their food principally by diving far beneath the surface. By many writers these diving ducks are regarded as representing one or more distinct sub-family groups (*Fuligininæ*, etc.), to a great extent on account of the fact that the membranous lobe on the hind-toe is always well developed. Since, however, this is not an absolutely distinctive character, while difference in habits is not generally recognised as a feature upon which to establish zoological groups, it seems preferable to include them all in the subfamily *Anatinæ*. In addition to this lobe beneath the hind-toe, all the diving ducks are characterised by their stout build, thick, close plumage, rather short wings, and backwardly-placed legs. This shortness of the wings produces a peculiar style of flight, which when once recognised cannot be mistaken; while the position of their legs gives them an awkward and waddling kind of gait. In the water they are, however,



MOUNTED IN THE ROWLAND WARD STUDIOS

RED-CRESTED POCHARD.

unsurpassed, both in the matter of swimming and of diving. In most species the drakes retain a non-breeding plumage, worn during the time that the flight-feathers are in course of moulting, but information on the subject of this double change of plumage and the length of time during which the non-breeding dress is retained appears to be still defective. None of them displays a bright "speculum" on the secondary wing-quills, but the primaries may show a white or whitish wing-spot.

The red-crested pochard (sometimes known as *Fuligula rufina*) is the sole representative of its genus, and takes its name from the elongated feathers of the head of the drake when in breeding-plumage. In addition to this, it is characterised by the rather long beak, which, except for a downward bending at the tip, has a nearly straight profile; the nostrils, situated at about one-third the total length from the base, and broad, prominent, widely separated transverse plates internally; the short and wedge-shaped tail, formed of sixteen feathers; the large feet; and the depth of the lobe on the hind-toe.

As indicated by its name, the male red-crested pochard is a striking and handsomely coloured bird, measuring 21 inches in length from beak to tail. In marked contrast to the brilliant crimson of the beak, the feathers of the crest are golden bay, and those of the rest of the head and the neck cinnamon-red; the throat, lower part of the neck and the upper portion of the breast are deep velvety black, as is the lower portion of the back; the rest of the back is yellowish brown; the flanks, a patch across the base of the scapulars, the lesser wing-coverts, and a patch on the primary quills are white; the eyes are red and the feet reddish orange. When this brilliant breeding-plumage is discarded the bird is almost unrecognisable, as it loses its stately crest, and becomes practically of the same sombre hue as its partner at all seasons. As regards the dress of the duck, it will suffice to state that there is no crest on the crown of the head, which is dark brown, while the cheeks and throat are greyish white, and the remainder of the plumage, with the exception of the white under-parts, pale brown; the beak and legs being reddish brown. Young birds are like their female parent; while the ducklings, when in down, are uniformly brown, tinged with drab above, except for an indistinct yellowish spot on each side of the lower part of the back, a streak of dusky olive on the line of the eye, and the sides of the face, which are of the same pale yellow as the lower surface of the body.

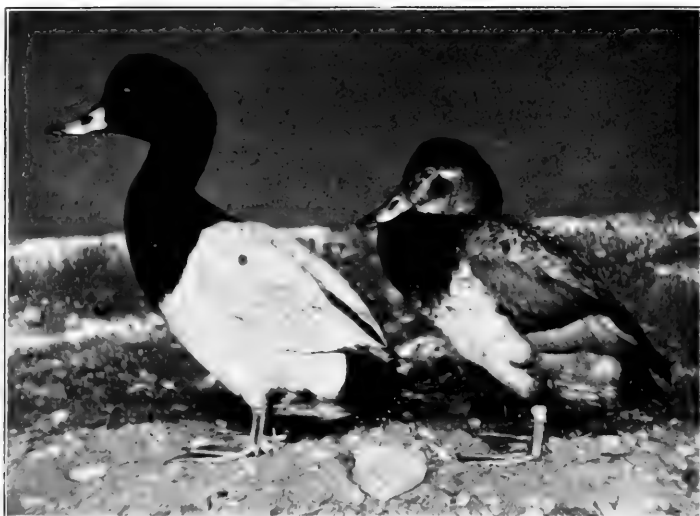
The Mediterranean countries, and thence eastwards by way of the Black and Caspian Seas to Persia and Eastern Turkestan, constitute the proper home and breeding-resorts of the red-crested pochard. From

Turkestan it visits India in large flocks during the winter-months; while a certain number of stragglers occasionally wander, at different times of the year, to the eastern and south-eastern coasts of England, among which a few extend their travels still farther westwards. The number of such visitors is, however, but small, so that there may be a question whether the species is entitled to the definite place here assigned to it in the British list. Apparently the total number of instances recorded of the occurrence of this species during the nineteenth century was only nineteen, but as one of these visitations is stated to have been represented by no less than eighteen individuals, the claim of this pochard to a definite place in the list is at least as good as that of the ruddy sheldrake. Moreover, a specimen, making the twentieth, was taken in Suffolk in 1904. Of these twenty records, Scotland and Ireland respectively claim but one each. In the case of such an occasional straggler it will suffice to state that the present species is one of the freshwater diving ducks, and that it generally frequents, often in large flocks, open sheets of water where there is good and sufficient covert on the banks.

Pochard In several modern ornithological works the true
(*Nyroca ferina*). pochard and its immediate relatives will be found described under the generic name of *Aythya* in place of *Nyroca*, but since both these names were given in the same year, it seems preferable to retain the one more generally in use. In works of a more old-fashioned type the pochard, or dun-bird, as it is locally called, is referred to as *Fuligula ferina*. Although the pochards, other than the red-crested species, are frequently divided into several genera, they are here included in the single genus *Nyroca*. They are all broadly distinguished from *Netta* by the fact that the beak does not taper towards the tip, where it may, indeed, be wider than at the base, and by the presence of only fourteen tail-feathers; an additional character being that the transverse plates on the under surface of the upper half of the beak are shorter and less prominent.

The true pochard, which is one of the crestless species, is specially characterised by the dull chestnut-colour of the head and neck of the drake in breeding-plumage, and the distinct barring or lacing of the back and scapular region. In addition to these features, it may be mentioned that the beak is black with a leaden-blue band across the middle, there is an inconspicuous grey wing-bar, the breast and upper part of the back as well as the lower portion of the latter and the

upper and lower tail-coverts are black or blackish, as are the breast and the rest of the under-parts, while the barred portion of the back is pale lavender finely laced with wavy black lines in the "vermiculated" fashion. In immature males the eye is orange-yellow, but in fully adult drakes it turns deep ruby-red: a type of change paralleled among cockatoos. When in non-breeding plumage (the duration of which appears to be unknown), the drake is generally similar in colouring to his mate, but has the abdomen and under tail-coverts somewhat darker. In the duck the eyes are brown, as are also the neck and



MOUNTED IN THE ROWLAND WARD STUDIOS

POCHARD.

breast, while the grey wing-bar is wanting. Dull olive-grey is the prevalent colour of the down on the upper-parts of the duckling, but there are buff spots in front of the wings, and eyebrow-stripes of the same hue, as well as a dark streak below each eye, divided into two portions, one before and the other behind the line of the eye itself; the under-parts are buff. It may be added, as a curious fact, that, apart from its change of colour with age, the eye of the adult drake will likewise show a similar transformation under the influence of strong excitement. Eighteen inches is the ordinary length of the adult male bird, the weight of which may vary between a couple of pounds and two pounds six ounces.

The pochard is exclusively an Old World species, its range extending

from the Atlantic seaboard in the west to Lake Baikal and so on to Japan in the east. The central districts of Europe form its main breeding-range, which does not extend much farther north than the latitude of St. Petersburg, namely, to Lake Ladoga in latitude 60°, and includes Poland, Germany, and Denmark. Farther east the Caspian apparently marks the southern breeding-range; but in winter these birds visit the Mediterranean countries in considerable numbers, and also arrive in India and China in flocks which may be counted by thousands. From October or November to March is the period of its winter-sojourn in India, and probably much the same is true with regard to the Mediterranean countries. Winter is also the season when pochards chiefly appear in the British Islands, where, however, a certain number remain for the breeding-season. Where they enjoy effective protection in England, the number of these nesting pochards is stated to have shown a decided tendency to increase of late years. Norfolk, as in so many analogous instances, harbours the greater number of these breeding-birds, but nests are also recorded from Yorkshire and some of the Metropolitan counties. On many Scottish lochs these ducks make their appearance not unfrequently in the middle of winter, but occasionally considerable numbers visit the western coast. Here Loch Vasapol, in the island of Tiree, off the Argyll coast, is a favourite resort of these birds, and in the summer of 1891 a duck, accompanied by three ducklings, was seen on this piece of water. Fifeshire is also recorded as a breeding-place, and on at least one occasion the nest has been found in Orkney. In Ireland during winter pochards sometimes make their appearance in considerable numbers; and there are statements as to their having bred in several Irish counties.

The habits of all the pochards are very similar, and a brief account of those of the present species will therefore practically suffice for the group generally. In the main these birds resort to inland waters—apparently always for breeding purposes—but they may nevertheless be seen from time to time on the coast. In India the large pieces of water known as jhils, which are not dissimilar in general character to the Norfolk Broads, are the favourite resorts of pochards, and in such situations they may not unfrequently be seen in flocks of thousands. Less commonly they associate in small parties, or may even go about singly; and such parties or single birds at times take up their quarters on rivers. Like the rest of their kin, they obtain their food, which is mainly of a vegetable nature, by diving and pulling it up with their beaks from the

bottom ; apparently this occupation takes place to a great extent at night, when these birds are active, but it is also practised during the day. When at rest, they generally float quietly on the water, rather than take up their station on dry land ; and when thus floating have the body somewhat deeply sunk in the water, and the neck drawn back. When once fairly on the wing they fly strongly and well with a peculiar and unmistakable rustling sound ; but they have considerable difficulty in getting under way, especially in calm weather. At diving they have few superiors ; and when on the move, but not feeding, they frequently amuse themselves by chasing one another on and below the surface of the water. The call-note is a low harsh sound which has been compared to the syllable "*kurr*." When killed on inland waters, the flesh is excellent for the table—as good indeed as that of pintail. The nest is a rather large structure of dried grass and sedge, lined with down, and placed amid rushes or other water-plants. In May or early June it contains a clutch of greenish or greenish-buff eggs, normally numbering from seven to half-a-score, but occasionally reaching as many as thirteen ; the length of each varying between half a point on either side of $2\frac{1}{2}$ inches. The down amid which the eggs are laid is brown, with a large dull white central star and greyish-brown tips to each filament or plume.

White-eyed Pochard (*Nyroca ferruginea*). The white-eyed pochard is a bird which suffers under a multiplicity of names, both vernacular and scientific. It is known, for instance, in English as the white-eyed duck, or ferruginous duck, while among its Latin designations are *Fuligula nyroca*, *Fuligula ferruginea*, *Nyroca nyroca*, and *Aythya* (or *Æthya*) *nyroca*, although these by no means exhaust the list of its titles. To ignore them is impossible, as one is favoured by one writer and a second by the next. The drake may always be recognised by the absence of a crest, the speckling (as distinct from barring) of the back and scapular region, and the dull chestnut head and neck ; while the duck may be identified by the absence of white on the face, the presence of a white wing-bar, and the rufous brown of the head and neck.

We may, however, make another brief diagnosis, which in the case of the drake will run as follows :—The eye is white, there is a white wing-bar with a black border, the head, neck, and the upper portion of the breast are chestnut or bright bay, the front of the throat has a triangular white spot, the back and wings are dark brown with lighter specklings, the wing-quills shot with green, the flanks chestnut

brown, while the under-parts are white, the back is bluish black, and the legs and feet are lead-colour.

In length the bird is a couple of inches less than the pochard, measuring only 16 inches, while its weight is about 1 lb. 6 oz. Apparently there is no non-breeding plumage, which has been altogether eliminated in favour of the breeding-dress. The duck is a smaller, duller, and darker bird than her mate, with grey eyes; and young birds display a still duller tone in their plumage. The down of the duckling is generally dark brown on the upper-parts, but on the



MOUNTED IN THE ROWLAND WARD STUDIOS

WHITE-EYED POCHARD.

cheeks and front of the neck it becomes yellowish buff, while a still more distinctive feature is formed by the presence of a light bar behind each wing.

An irregular visitor, generally in winter and spring, to the British Islands, the white-eyed pochard is a native of the Mediterranean area, central and southern Europe, and thence eastward through south-western Asia to Kashmir, where it commonly breeds on the Wala Lake. Holland, Germany, and the latitude of Moscow apparently form the approximate limits of its northern breeding-range in Europe. In winter it ranges as far south as the Canaries, Egypt, Abyssinia, northern India, and upper Burma. Although examples are often

seen offered for sale in the London markets, most of these are probably of foreign origin, and the record of authentic British specimens up to the close of last century seems to be comparatively small. Most of such birds as visit the British shores arrive on the eastern coast between the estuaries of the Thames and the Humber, and comparatively few wander either much farther north or any great distance in a westerly direction. In Ireland, for instance, it had only been obtained on six occasions up to the year 1900, while it is not much less uncommon in Scotland, although three instances of its occurrence near the capital are recorded.

In India the white-eyed pochard is usually seen in small scattered parties, or even singly, and when flushed it always rises in twos or threes, instead of the whole flock springing into the air simultaneously. It feeds to a much greater extent on animal substances than is the case with the pochard, and its flesh is in consequence very much inferior to that of the latter. To its nest and breeding-habits it will be unnecessary to refer on the present occasion.

Nearly allied to this species is the eastern white-eyed pochard, *Nyroca* (or *Aythya*) *berii*, a species breeding in eastern Siberia, China, and Japan, and easily distinguished by the black head and neck, which are glossed with green in the drake, but brownish with only a slight gloss in the duck. A single example of this pochard was obtained near Tring in 1901;¹ but very decisive evidence is required before it can be regarded as anything more than one which had escaped from confinement.

Scaup-Duck As the majority of His Majesty's subjects are
(*Nyroca marila*). ignorant of the meaning of the word *scaup* or *scalp*,
it would be much better if the species known as
the scaup-duck were termed the mussel-duck, for it derives its name
from its habit of frequenting the beds of that mollusc between tide-
marks and feeding on the succulent contents of the shell. By some
writers it is called simply the scaup, but such a procedure practically
ignores the meaning of the name. In not a few ornithological works
the scaup-duck will be found described under the name *Fuligula marila*;
that generic term being employed by some writers in a wide sense so
as to include all the pochards, while by others it is used only for the
present species and its ally the crested pochard. The drake resembles
that of the pochard in having the feathers of the back and scapular
region distinctly barred or laced with fine wavy black lines, but differs

¹ See H. N. Rothschild, *Bulletin Brit. Ornithol. Club*, vol. xii. p. 25 (1901).

in having the head and neck black with a greenish sheen ; while the duck may always be recognised by the white on the forehead and around the base of the beak, coupled with the absence of a crest. In addition to the foregoing features, the drake is characterised by the dull brown colour of the lower part of the back, the white wing-bar, with a greenish border, the blue beak, yellow eyes, and blue-black feet and legs. In size and weight the scaup-duck is practically identical with the pochard, the length of the drake being 18 inches and its weight just short of $2\frac{1}{2}$ lbs., while the duck weighs 2 lbs. In the duck the white on the forehead forms a broad band round the



MOUNTED IN THE ROWLAND WARD STUDIOS

SCAUP-DUCK (MALE AND FEMALE).

base of the beak, the remainder of the head, together with the neck and breast, being dark brown ; the feathers of the back and scapular region are brown finely laced ("vermiculated") with black, the wings, beak, and feet are coloured as in the drake, as is also the abdomen, with the exception that the under tail-coverts display dusky plumage. After mating, the drake assumes a non-breeding plumage for some time, which is said to resemble the permanent dress of his partner, although further particulars with regard to this are desirable. Birds of the year are generally similar to the adult ducks, but the drakes are always recognisable by the darker and richer tone of their colouring ; the fully adult dress in the sex is, however, not attained till the

third year. The duckling is dark brown above, but the throat and sides of the head, as well as the front of the neck, are yellowish white, while a dull grey band traverses the lower part of the latter, and the under side of the body is dull yellowish.

The scaup-duck, which is mainly marine in its habits, is a circum-polar species, breeding in western Europe as far north as latitude 70° , that is to say, some five degrees within the Arctic Circle; eastwards the breeding-range extends across northern Russia and the dreary Siberian tundra, beyond the limits of tree-growth, to Kamchatka, where it is resumed on the other side of Bering Sea in Alaska to extend across the American continent northward of latitude 50° . In western Europe the scaup-duck apparently breeds over a large part of Scandinavia, but not farther south. On the other hand, during winter these handsome diving ducks journey long distances to the southward of their nesting-resorts, visiting not only the British Islands, but likewise the Mediterranean coasts, although somewhat sparingly, as well as the Black and Caspian Seas, China and Japan, and much the same latitudes in the New World. Although mainly, and in most parts a by no means uncommon, winter-visitor to the British Isles, the scaup-duck occasionally prolongs its sojourn in the north of Scotland throughout the year, and it has been found nesting in Sutherlandshire in 1899, in Fifeshire in the neighbourhood of Loch Leven in 1880, and in the Outer Hebrides in 1897 and 1900. As a rule, however, it takes its departure from our islands for the north during March; some of the birds probably not going very far, as Iceland is a favourite breeding-resort of the species. The northern and exposed situation of the Outer Hebrides is probably sufficient to account for the rare occurrence of the bird during the winter in these islands, although a similar reason cannot be adduced to account for its rarity at that time of the year on the southern coast of Ireland. Although scaup-duck are occasionally recorded during winter from Kashmir, Kulu, Nepal, and other Himalayan districts, it is but very rarely indeed that any individuals reach the plains of India. Nevertheless, the species has been seen at Karachi, near Delhi, and even in Bombay.

As already stated, the scaup-duck, or scaup-pochard, as it is sometimes called, is essentially a bird of the sea-coast, and is very seldom seen far inland except during the breeding-season. Both sexes have a loud screaming note far more harsh and discordant than that of any other duck. Both in winter and summer (except during the nesting-season) it associates in flocks or parties, which are, however, much larger at the former than at the latter time. The duck lays

her clutch of from six to nine (in one instance a round dozen has been recorded) pale greenish grey or stone-coloured eggs in a nest which is sometimes skilfully concealed in a bilberry, juniper, or dwarf willow bush, but more often in a hole in the ground surrounded by bilberries and cranberries growing amidst tussocks of sedge and cotton-grass. Dry broken sedge, overlain with a plentiful supply of the bird's own down, forms the lining of the nest, so that when the duck leaves her precious charge for a short time there is but little fear of the eggs becoming chilled. From 2.5 to 2.65 inches is the length of the longer diameter of the eggs.

The idea that the American scaup-duck (*Nyroca affinis* or *N. mariloides*) has occurred wild in Great Britain is not founded on fact ; and in one instance at least is based on the circumstance that a presumed hybrid between the pochard and the white-eyed duck was mistaken for that species.

Tufted Duck The tufted duck, or tufted scaup-duck, as it is sometimes designated—the *Fuligula cristata* of some writers and *Fuligula fuligula* of others—is specially characterised by the crest of plumes adorning the head in both sexes, the black head and neck of the drake, and the uniformly coloured back of both sexes. These three characteristic features are indeed amply sufficient to differentiate the species from all its relatives, but it may be advisable to append the following fuller diagnosis.

In the breeding-plumage of the drake the crest is formed by the long pendent feathers of the nape of the neck ; this crest, in common with the rest of the head and neck, being black with purple reflections, while the back, the fore part of the breast, and the under wing-coverts are dull black without such gloss ; in marked contrast to this sable garb are the white under-parts and wing-spot, the latter bordered with black : as regards the bare parts, the beak is slaty grey with a black " nail," while the eyes are golden yellow, and the legs and toes slaty blue with black webs to the latter. During the period that he reverts to the non-breeding livery the drake wears the less striking colours of his partner, with the exception that some of the feathers of his full dress are invariably retained. In the duck at all seasons the crest is much less developed than in the drake, and sooty brown replaces the black of her mate's breeding-dress, which on the under-parts are brown with grey barrings ; the *tout ensemble* being much less effective and striking than is the case in the drake. Young birds differ from their female parent merely by the white-spotted head ; and duckling are brown

above, with an indistinct paler spot on each side of the lower part of the back, and a somewhat similar eyebrow-stripe, while their under surface is buffish white merging into dusky brown behind.

Unlike the scaup-duck, the present bird is restricted to the Old World, where its breeding-range extends from the Atlantic to the Pacific seaboard, from latitudes 70° in Europe and 62° in Eastern Asia southwards to about latitude 50° . With this more southern extension of the breeding-range, as compared with that of the last species, it is not surprising to find the tufted duck nesting locally in many parts of



MOUNTED IN THE ROWLAND WARD STUDIOS

TUFTED DUCK.

the British Islands, to which, however, it is mainly a winter-visitor. In England nests have, for instance, been recorded from Sussex, Worcestershire, Nottinghamshire (where there is a regular breeding-place in which the birds are specially protected), Shropshire, Staffordshire, Norfolk, Yorkshire, and Northumberland. In Scotland the species breeds on many lakes, and has been recently recorded as doing so in Merionethshire, and also in Uist, in the Hebrides. Irish nesting-records are now quite numerous, and include fourteen counties, in many

of which the number of resident birds appears to be decidedly on the increase. Nor is this all, for whereas this duck in winter visits southern Europe, the Mediterranean countries, northern India, and upper Burma, it also ranges far up the Nile Valley and not improbably breeds in the Abyssinian highlands in the neighbourhood of Lake Ashangi. Such a southerly breeding-range for a member of this group is very remarkable. In Ireland, and probably also in England, the migrating flights of the tufted duck do not generally make their appearance before December, and while most depart by April, a few linger on till May. In India the species makes its appearance in October and November, and wings its way northward in the following March, except occasionally, when it may linger a few weeks longer.

At all times of the year the tufted duck is mainly a freshwater species, as it is exclusively during the breeding-season ; and is generally found in small parties on lakes and other pieces of water. In the winter it may, however, be seen in tidal waters and estuaries, or even on the open coast. In Lough Neagh, Ireland, these ducks, together with pochards, are taken while diving by means of nets sunk in fifteen fathoms of water, in the meshes of which they become entangled. Like pochards, they make a loud noise when taking wing by striking their feet on the water ; and when in flight utter a kind of croaking cry. Lakes with plenty of covert on the banks form their favourite resorts ; and their food appears to consist more of animal than of vegetable substances. When on the water, in which they sit high, so that much of the white breasts of the drakes is visible, they are easily recognised by their crests. The nest, which is made of dried grass and sedge, with a copious lining of dark brown down, is generally placed in a tussock of grass not far removed from the water's edge, although it may be situated amid rushes, or even in the grass of pasture-land. In May or June it usually contains half-a-score or a dozen stone-coloured or drab-brown, or even greenish-brown eggs, although the number not unfrequently falls below this and may occasionally reach thirteen. From rather less than $2\frac{1}{4}$ to a little short of $2\frac{1}{2}$ inches represents the limits of variation in the length of the eggs. The down of the tufted duck may be recognised by the small size of its component filaments, each of which is wholly chocolate-brown in colour, with the exception of an indistinct light centre. In length the drake measures from $16\frac{1}{2}$ to 17 inches, and weighs from 1 lb. 10 oz. to 1 lb. 14 oz.

Golden-eye The golden-eye, designated in some works by the
(Clangula name *Clangula clangula*, in place of the title here
glaucaion). employed, is a member of a genus containing two
 other species, and takes its English name from the
 golden yellow of the eyes, although this is by no means its most distinctive characteristic. From its Latin designation, *Clangula*, it might naturally be assumed to be a more noisy bird than its kindred ; but as a matter of fact this is not the case, its cry being very similar to the harsh croak of the tufted duck. Possibly the name refers to its noisy flight. From the pochards and scaup-ducks the golden-eyes are distinguished by having sixteen tail-feathers, by the base of the upper half of the beak being higher than wide, and by the stiffening of the tail-feathers which are long and rounded at the tips. Other distinctive

DUCK GROUP

generic characters are displayed by the nearly straight profile of the beak, in which the nostrils are set rather nearer the tip than the base, while the transverse plates on its inner surface are short, stout, and somewhat widely separated; the long and pointed wings; the short and backwardly-placed legs; the broad shield-like scales on the front surface of the shank of the leg; and the deep lobe to the hind-toe.

The golden-eye is a large duck, measuring 18 inches in length, and weighing from a couple of pounds to two pounds six ounces. The large white patch at the base of the beak affords an unmistakable



MOUNTED IN THE ROWLAND WARD STUDIOS

GOLDEN-EYES (DUCK AND DRAKE).

means of recognising the drake when in the ordinary breeding-plumage, the rest of the head, the upper part of the neck, and the back being glossy greenish black; in contrast to this is the white of the lower portion of the neck, the breast, the scapulars (which are edged with black), and the wings, with the exception of the black primary quills, coverts, and a transverse bar; while the beak is blue-black, and the eyes, legs, and toes are orange-yellow. The non-breeding dress assimilates to the permanent livery of the female, except for the retention of the wing-markings of the other costume, with faint traces of the white face-patch. In females and young birds the latter is replaced by chocolate, while dark grey is substituted for black elsewhere; on the wing the greater coverts and the wing-spot are alone white, divided by a black

bar ; and the flanks and under tail-coverts are mottled with greyish black. Sooty brown is the prevailing colour of the duckling, but the throat and a spot on each side of the lower part of the back at the base of the wing are white, and the breast and under-parts are greyish white.

The breeding-area of the golden-eye is circumpolar, extending in Scandinavia to the very general limit of about 70 north latitude, but in Russia falling apparently some twelve degrees below this. Holstein, Pomerania, eastern Prussia, and the Caucasus fall within the southern limits of the breeding-area in Europe. In winter this duck visits the Mediterranean countries, Persia, Afghanistan, China, and, in the New World, the southern United States and Mexico. To Great Britain and Ireland the golden-eye, as a rule, is nothing more than a winter-visitor, making its appearance in October and departing in April or May. Occasionally, however, a pair foregoes the trouble of a long northern journey and remains with us to breed. In the summer of 1895 a pair, for example, nested near Otley in Yorkshire, and a second pair on Swinsty reservoir in the same county ; and if two such instances occurred in one season in a single county, there must almost certainly be others which have escaped detection. There are also reports as to the breeding of the species in Scotland, although no definite instance appears to have been recorded. To Ireland the golden-eye is described as a winter-visitor, frequenting both salt and fresh water in all districts, but less common than the pochard.

Although the statement as to its commonly visiting salt water in Ireland is no doubt perfectly correct, the golden-eye as a rule is a freshwater duck, frequenting rivers, lakes, and marshes alike, but sometimes making its appearance on the coast in winter. The story as to no less than one hundred and twenty of these birds having been driven by the current into a net in the river Eden, in Fifeshire, in the spring of 1810 is so remarkable as to be worth one more mention. The most strange feature in the normal habits of this species is, however, its propensity for nesting in the hollow of a decayed tree, or failing this, the crown of a pollard ; thus performing as a rule a feat essayed only occasionally by the mallard. The height of the nest above the ground is stated in one instance to have been a dozen feet, and in another rather more than double that amount. The young are carried down held between the beak and the breast of the duck. When no tree is available, the nest is placed on the ground. The Lapps and Finns take advantage of this tree-nesting habit of the golden-eye by suspending suitable boxes at a convenient height above the ground, in which the

ducks lay a large supply of eggs. As a rule, from ten to thirteen is the usual number of eggs in a clutch, but there may be more, even under normal conditions ; and it would seem probable that when the eggs are gradually removed, as is done by the Lapps and Finns, there is an abnormal increase in the number laid. In cabinets the eggs, which usually measure slightly less than $2\frac{1}{2}$ inches in length, are olive or dull green, but when freshly laid their colour is bluish or bright pea-green.

One reputed occurrence of Barrow's golden-eye (*Clangula islandica*), of Iceland, Greenland, and Arctic America, in Great Britain is not supported by sufficient or satisfactory evidence. On the other hand, the American buffle-headed duck (*Clangula albeola*), whose breeding-range extends from Labrador to Alaska, is known to have occurred at least five times in the British Islands up to the close of the last century ; the earliest of these occurrences being in 1830 and the latest thirty-five years subsequently. Three out of the five are English, and the remaining two Scottish. The varying reflections of steely blue, purplish, and bronze on different parts of the head, coupled with the larger white face-patch, serve to distinguish the drake from the golden-eye ; while the duck may be recognised by the greyish-brown head and neck, and the white ear-coverts and wing-bar. The buffle-head is sometimes referred to a genus by itself, under the name *Charitonetta albeola* ; but one of the ornithologists who adopted this title subsequently reverted to the older usage.

Long-tailed Duck
(*Harelda glacialis*).

The male of that thoroughly Arctic species, the long-tailed duck, is a bird which cannot by any possibility be confounded with any other duck, and there can be no question that the species is thoroughly entitled to represent a genus by itself. The chief characteristics are derived from the plumage, in which there is no wing-bar, and the colour is mainly black and white in the drakes for the greater part of the year, while the tail-feathers and the scapulars are elongated in that sex. The number of tail-feathers is fourteen.

In breeding-plumage the sides of the face of the drake are brownish buff, and the rest of the head and neck white with the exception of a dark brown oval patch on each side of the latter ; the middle of the back and the elongated pair of tail-feathers are black ; the long scapulars, inner secondaries, outer tail-feathers, and the whole of the under-parts are white : while the wing-coverts are brownish black. In the non-breeding dress, which appears to be worn only for a short season in summer, the region round the eye is buff and white, and the rest of the

plumage dark brown, with broad rufous edges and dark middles to the scapulars and secondaries. There is, however, no hard-and-fast line between the breeding and non-breeding dresses, which are connected by insensible gradations. In the duck the prevailing tone is dark brown above and white below, but there is a white stripe above the eye, the neck is white on the sides, and the cheeks and upper portion of the breast are ashy brown. Young birds of both sexes are like the female; and the duckling is dark brown above, with a light ring at the base of the beak and a similar ring round the eye, and greyish white beneath. The length of the drake, to the tips of the long



MOUNTED IN THE ROWLAND WARD STUDIOS

LONG-TAILED DUCK (MALE).

middle tail-feathers, is 22 inches, but its weight is only $1\frac{1}{2}$ lbs. or an ounce or so more.

Breeding throughout the Arctic regions of both hemispheres, the long-tailed duck wanders as far south in winter as the northern coast of the Mediterranean, the Caspian sea, and China and Japan. To the British Islands it is a winter-visitor, more abundant in the Hebrides and the north of Scotland than farther south, and in England less unfrequent on the eastern than on the opposite coast. Apparently the only evidence of its having ever laid in the British Islands rests on a pair of eggs obtained in Shetland as those of the *calloo*, by which name the bird is known in those remote isles. In the Färoes, however, it probably nests not unfrequently, while Iceland is one of its regular breeding-places. Immature birds, which in neither sex develop the long middle tail-feathers of the adult drake, are not uncommonly

mistaken for harlequin-ducks. To Ireland the species is an irregular winter-visitor in small numbers.

In their Arctic summer home, which some individuals appear never to forsake, long-tailed ducks frequent tarns and marshy lakes, where they remain till the young, which are hatched about the latter end of June, are fairly strong on the wing, when the whole assemblage betakes itself to sheltered estuaries and inlets on the coast. Like all the members of this group, these ducks are expert in diving; but they associate in smaller flocks than is the case with many other species. During the breeding-season the drake utters a peculiar musical note, of which the Shetland name *calloo* is supposed to be an imitation. It will be unnecessary to describe the nest and eggs.

Although something approaching a score of alleged instances of the occurrence in the British Islands of the beautiful harlequin-duck (*Histrionicus torquatus*) of the Arctic regions of both hemispheres have been recorded, it appears probable that the great majority of these are based on misidentifications; immature examples of the long-tailed duck being, as already mentioned, not unfrequently mistaken for the present species. Consequently, the harlequin-duck has no claim to a definite place in the British list; and our notice will therefore be but brief.

Evidently closely allied to the long-tailed duck, the present species (which is sometimes known as *Cosmonetta histrionica* or as *Histrionicus histrionicus*) differs so remarkably in its type of colouring, as well as in certain other features, that it is regarded as the solitary representative of a special genus. In addition to its peculiar and distinctive type of colouring (widely different in the two sexes, but showing a wing-bar in neither), the harlequin-duck is characterised by the absence of elongation of the two middle tail-feathers and scapulars of the drake, and likewise by its conical and sharply tapering beak. At least three specimens of the species are undoubtedly British, namely, one obtained near Scarborough in the autumn of 1862, and a couple killed on the Farne Islands, off the Northumberland coast, in the winter of 1886.

Elder-Duck
(*Somateria*
mollissima).

The group of soft-plumaged and downy Arctic ducks typified by the eider or dunter duck is characterised by the circumstance that the feathered area on the sides of the face is continued forwards on the beak to a point below the line of the hind margin of the nostrils, in place of stopping considerably behind this. In the present and following species the beak is rather narrow and pointed, the inner secondary quills

are somewhat elongated and sickle-shaped, and there is no metallic "speculum" on the wing of either sex. There is a very considerable difference in the colouring of the two sexes. The names "eider" and "dunter" alike refer to the soft downy plumage of these birds; the Scandinavian *dun* and the Icelandic *dunn*, from which *dunter* is derived, belonging apparently to the same root as the English *dun*.

In the drake of the true eider the crown of the head, the greater wing-coverts, the quills, the lower part of the back, the tail-feathers, and the whole of the under-parts, with the exception of a white patch on each side of the flanks, are black; the ear-coverts and nape of the



EIDERS (MALE AND FEMALE).

neck are pale moss-green; and the rest of the plumage white; the beak, legs, and toes being dusky green. This is the breeding-plumage, which is worn for the greater part of the year; but in the non-breeding dress, which is donned for a short time in summer, the whole plumage becomes black, except for the intermixture of a few white feathers on the neck and back. The duck, on the other hand, wears an inconspicuous, dark-barred buff dress at all seasons of the year; and birds of the year have a very similar type of colouring, but the margins of the feathers are grey in place of buff, young drakes being distinguishable by the presence of black on the sides of the neck. Ducklings are dark brown above and paler beneath, with a light brown streak above the eye. The species is one of the largest of the ducks, measuring 22 inches in length, and weighing as much as from 5 to 5½ lbs.

The habitat of the eider-duck may be said to include the North

Atlantic and a considerable stretch of the Polar seas in either direction from this centre. To the eastward, for instance, the range extends to the Kara Sea, on the farther side of Novaia Zemlia, and in the opposite direction to about the longitude of the Coppermine River, which discharges into the Arctic Archipelago opposite Victorialand. It is true, indeed, that the Greenland eider, as the American bird is commonly called, has been regarded as distinct, but even if this be really the case, it cannot well be considered as anything more than a local race (*S. m. dresseri*).

Eider-down, which is grey in colour, is such a valuable product, on account of its elasticity and extreme lightness, that wherever the birds by which it is yielded occur in considerable numbers within reach of human settlements they are protected by law, and consequently tend to increase in numbers. Among localities where the species is thus artificially fostered may be mentioned Iceland, the F  eroes, and the islands off the Scandinavian coasts. In its raw state eider-down is worth from twelve to fifteen shillings a pound ; but such is its lightness, that about $1\frac{1}{2}$ lbs. is sufficient for a bed-coverlet.

Only the northern portion of Great Britain lies within the breeding-range of the eider-duck, whose nesting-places occur from the Shetlands and Orkneys in the north along the east coast of Scotland to the Farne Islands and shores of Northumberland, and also for some distance down the west coast of Scotland, where, indeed, they have of late years tended to increase. To Ireland the species is nothing more than a rare and irregular visitor, although it has been seen on the coasts of all four provinces, and on two occasions has been observed inland on the waters of Lough Neagh. November is the earliest season at which these birds have been seen in most parts of Ireland ; and from that month onward they may be observed occasionally during the winter on the coasts of England. Considering that the north of Ireland is only some twenty miles from Islay, where eiders are to be found nesting, it is somewhat surprising that the visits of these birds to the Emerald Isle are so few and far between ; but it may be that the climate is too warm and moist.

In the main the eider-duck is a non-migratory species, most, if not all of the individuals seen any great distance south of the breeding-range having probably been driven out of their proper zone by stress of weather. Essentially a bird of the sea, the eider, except in the breeding-season, rarely comes ashore, and even when in flight prefers to follow the sinuous outlines of the coast rather than cross a headland or promontory. Indeed, the drakes at an early period of the breeding-season leave their partners on land, and betake themselves in large

flocks to an independent life on the ocean-wave in freedom from family cares and anxieties. In winter, when the females have rejoined their consorts, the flocks are sometimes very large, and may be seen at considerable distances from land. During the moulting-season these birds seem never to approach the shore ; finding in the open sea, when unable to fly, that protection which the mallard secures by skulking amid reeds. It is in the sea that the eider procures its food, which comprises crabs, shrimps, shell-fish, small fishes, etc. The usual cry is a harsh grating note, replaced by a softer cooing sound during the pairing-season.

The closeness with which an eider will sit on its nest, even when approached within two or three paces, is one of the most striking traits in the habits of this species. Rocky islands are the favourite breeding-sites, and while in some instances the nests are placed in crannies only a short distance from the water, in others they are situated amid the herbage on the open ground. The nest itself is a bulky structure composed of dry grass, heather, seaweed, and plant-stems, which, as the eggs are laid, is gradually filled with an abundant supply of the bird's own down. From five to eight is the normal number of eggs in a clutch ; their colour is greenish stone, and their length varies from just below 3 to $3\frac{1}{4}$ inches.

Drakes of the eider occasionally show a narrow and indistinct dark chevron (with the apex pointing towards the beak) on the under surface of the head ; and on this account specimens from Orkney have been incorrectly referred to the Pacific eider *S. v.-nigrum*, which is unknown in the British Isles. That species is a larger and heavier bird, with the beak of the drake bright orange, the black chevron large and sharply defined, and the green patch encroaching on the white of the side of the head, and extending beyond the eye, which it does not do in the ordinary species. The occasional presence in the latter of a small chevron must be regarded as a "sport," perhaps an ancestral heritage.

King-Eider
(*Somateria*
spectabilis).

A far handsomer, but at the same time a far rarer bird in the British Isles (where it has never yet been known to breed), is the king-eider, whose breeding area includes in the Old World the circumpolar zone north of Iceland and Scandinavia, thus embracing Novaia Zemlia, Kolguev, the New Siberian Islands, and the Siberian coast generally. In the western hemisphere, on the other hand, the breeding-range is more extensive in latitude, as it includes not only Greenland and the

extreme northern lands, but likewise Quebec ; while in winter these birds are found on the great Canadian lakes, in the province of New Jersey, and even in California. Since only a few king-eiders visit even Scandinavia in winter, it is natural to expect that the species would be merely an occasional straggler to the British Islands, and as a matter of fact this is actually the case, eighteen authentic records of its occurrence being mentioned in Harting's *British Birds* during the past century, commencing with the year 1813. Of these, four



MOUNTED IN THE ROWLAND WARD STUDIOS

KING-EIDER (DRAKE).

occurred in Orkney and one in Shetland in November 1832, May 1868, December 1869, March 1884, and February 1899, respectively. In addition, two drakes were shot at Tentsmuir in Fife in 1872 and 1899, the former being in the Edinburgh Museum and the latter mentioned in the *Annals of Scottish Natural History*. A young drake was also seen in the spring of 1883 near the Churchyard Rocks off the western promontory of Pomona in Orkney. A specimen was killed off Graemsay, Orkney, in 1906, another in Islay the same year, while a third is recorded from Ireland in 1897.

In both sexes the feathering on the forehead is con-

tinued on to the beak as far as the hind border of the eye, but that on the cheeks stops short at the gape. The most conspicuous feature of the drake is the orange-red beak, with a pronounced swelling at the root. As regards the colour of the plumage, the top of the head is bluish grey, while the cheeks are white with a greenish tinge ; the neck, the upper part of the back, and the fore part of the breast are white, the latter being, however, tinged with rich cinnamon-buff ; there is a white patch on the flank, placed farther back than in the true eider ; the elongated scapulars, the lower part of the breast, the abdomen, and the

lower portion of the back and the tail are black ; while a chevron on the throat, a horseshoe at the base of the beak, and a spot below each eye are also black. With the exception of the swollen beak, the drake, when in the non-breeding dress, becomes like the duck ; the latter being very similar to that of the true eider, although distinguishable by her smaller size, redder colour, and the nature of the feathers on the back. On account of the marked difference in the plumage and colouring, the species is frequently referred to a separate genus, under the name of *Erionetta spectabilis*.

Scoter
(*Edemia nigra*).

The last group of the diving ducks is represented by half-a-dozen marine Arctic species easily recognised by the uniformly dark colour of their plumage, and all included in a single genus. Of these the typical member is the one to which the name scoter properly belongs ; this title being apparently akin to the word *scouter* and *scout*, and referring to the fact that these ducks come in the

van of the great southerly migration of sea-birds. In ordinary plumage the scoter-drake is uniformly black ; the greatly swollen beak being also sable, with the exception of a patch of orange-yellow along the middle ridge ; while the legs and toes are green, with slate-coloured webs to the latter. The non-breeding plumage, if such is ever assumed,

is still unknown. The duck differs from her partner not only by the absence of any swelling at the base of the beak, which is uniformly coloured, but also by her dark brown dress. Very interesting is the fact that in the young bird the cheeks and sides and part of the neck are dull greyish white, while the under-parts are mottled with white and brown, thus showing that the dark livery of the adults is an acquired



SCOTER.

and specialised feature. The duckling in down is dark brown above, with the throat white and the lower surface greyish brown. In length the adult drake reaches 20 inches, while it may weigh as much as 2 lbs. 10 oz. although the duck seldom exceeds $1\frac{3}{4}$ lbs.

Nesting in northern Europe and Asia, from Iceland and Scandinavia eastwards to the Taimyr Peninsula of Siberia, the scoter migrates southwards down the Atlantic coast in winter literally by thousands, occasionally travelling as far as the Azores and the mouth of the Mediterranean. It may also be seen at the eastern end of the latter sea, which it probably reaches from the Caspian Sea, one of its favourite winter-resorts. Most of the scoters that visit the British Isles are seen in autumn and winter, when they are most abundant in Scotland, the east coast of England, and the north of England, keeping, as a rule, well out to sea, although occasionally making their appearance on land. In Scotland, however, a certain number of individuals remain till the summer is well advanced, and there can be little doubt that the species has occasionally bred in Inverness-shire and Caithness, young in down having been seen in the latter county; and it is definitely recorded as nesting in Ireland in 1905. Its alleged nesting in Sussex is, however, not substantiated. On the greater part of the coast of Munster scoters are comparatively rare, but around the rest of Ireland, more especially in the north, these birds, which are locally known as black ducks, are extraordinarily abundant in winter, and in places acres of water may be seen dotted over with these birds and scaup-ducks.

The scoter is unsurpassed both as a diver and a swimmer, and in general is able to float on the roughest waves with a cork-like buoyancy; it is also a strong flier, although but an indifferent walker. Its food is said to comprise vegetable matter as well as crustaceans, shellfish, etc.; and in Dundalk Bay these birds are stated to feed largely on mussels, although, as is also the case with the scaup-duck, we are not told how they manage to open these bivalves. The ordinary cry is a grating note, somewhat like the repetition of the syllable "*krur*," but in the pairing-season the drake calls to his partner in a less unmelodious manner. The nest, which is of the usual duck-type, is built in a hole in the ground; and the smooth eggs, of which there are eight or nine in a clutch, are cream-coloured, with a length of from 2.4 to 2.7 inches. Occasionally scoters have been seen feeding in shallow ditches draining into the sea.

Velvet-Scoter
(*Ædemia fusca*).

From the typical species the velvet-scoter is easily distinguished by the presence of a white wing-bar, which is, however, much less conspicuous in the

duck than in the drake. The species takes its name from the velvety black plumage of the drake, relieved only by a white patch behind the eye and the aforesaid wing-bar; but sharply contrasted with the orange beak, which has a swollen black base and a black line along the upper surface, and likewise with the orange-red legs and toes, the latter connected by black webs.

In the non-breeding dress the drake's plumage, although darker, is almost indistinguishable from that of the duck.

The latter is sooty brown above and paler beneath, with dirty white patches before and behind the eyes, a lead-coloured beak, and dull red legs and toes, with dark webs. A remarkable difference from the typical scoter is to be found in the fact that young birds are like the duck; this earlier assumption of the dark colour indicating a further specialisation.

Ducklings are dark

brown above, with a square spot below the eye, a patch on the wing, and the under-parts white.

The breeding-range of the velvet-scoter extends from Scandinavia along the Arctic shores of Europe and Asia to the Pacific; and from these northern resorts the birds descend in winter occasionally as far south as the north of Spain, and constantly to the British Isles, the Adriatic, the Black and Caspian Seas, and the valley of the Yang-tse-Kiang. As might have been expected, these scoters are much more common on the eastern than on the opposite coast of Great Britain; and the same holds good with regard to Ireland, where, however, only some twenty occurrences of the species were recorded up to the close



MOUNTED IN THE ROWLAND WARD STUDIOS

VELVET-SCOTER.

of last century. The white wing-bar and eye-spot render the drakes always distinguishable from the ordinary scoter with which they frequently associate. In the Orkneys and Shetlands, where they are regular visitors, velvet-scoters usually arrive in September or October, and take advantage of the shelter afforded by the numerous inlets and bays, where they congregate in flocks of from half-a-score to double that number till the following spring. With the exception that during the breeding-season it ascends rivers to a considerable distance and frequents inland lakes, often nesting on the Siberian tundra at a considerable distance from water, the velvet-scooter agrees in the matter of habits with the typical species.

Surf-Scoter
(*Edemia*
perspicillata).

The last and rarest, and at the same the largest, of the three species of the present group which visit the British Isles is the surf-scooter, easily recognised in the case of museum specimens by the circumstance that the feathers of the crown of the head extend farther forward on the beak than do those on the sides of the face, and in the field by



SURF-SCOTER.

the uniformly velvet-black plumage of the drake, relieved by a large squared white patch on the crown (occasionally absent), and a triangular one on the nape. In the same sex the beak is bright red, with a large black spot on each of the much swollen sides, the eye is

white, and the legs and toes are crimson on the outer and orange on the inner side, with black webs to the latter. In non-breeding plumage the drake resembles the duck, which is dull brown, becoming lighter on the cheeks and under-parts, and with an indistinct white nape-patch; the beak being dark olive, and the legs and feet orange. Although the plumage of young birds shows considerable variation in colour, it generally approximates to that of the duck, but usually has a white spot at the base of the beak and another on the ear-coverts.

Why the inner and outer sides of the legs of the adult drake should differ so markedly in colour requires explanation, as it is scarcely a feature which would have been developed without special reason. The length of the adult is about 20 inches.

The surf-scooter is a native of North America, whence it straggles to Greenland and northern Europe as far as Swedish Lapland. In Orkney the surf-scooter was stated many years ago by a competent observer to be by no means rare, although far from common; and that every season for some ten years he had seen one or more in company with ordinary scoters in September or October. Apart from this statement, something over twenty definite occurrences of the species in the British Isles were recorded up to the year 1900, of which, as might be expected, a considerable proportion relate to the western coasts. Six records are credited to Ireland.

There is nothing in the habits of this species calling for special notice.

Smew
(*Mergus albellus*). The smew and the merganser are the last, and at the same time the most generalised representatives of the family Anatidæ, of which they constitute a special subfamily group, the Merginæ. Although evidently nearly related to the diving ducks, these birds and their allies are broadly distinguished by the narrow cormorant-like beak, which is hooked at the tip, and has the cutting-edges notched in a saw-like fashion, and no transverse plates on the internal surface. The feet are relatively large, with a broad lobe on the lower surface of the hind-toe. In all their external characters these birds come much closer to cormorants than do the typical ducks, and thus serve to indicate that the orders Anseres and Steganopodes are probably divergent branches from a single ancestral stock. At first sight this suggests that the diving habit is the one which was common to the early Anseres; the surface-feeding habit of the swans, geese, and typical ducks being an acquired character. On the other hand, the South American chaja (*chauna*), which is a more

primitive type than the mergansers, is a surface-swimmer. Although mainly northern, the group has a certain number of southern representatives.

The smew, the sole member of its genus, is characterised by the relative shortness of the beak, which is of about the same length as the head and not longer than the shank of the leg; its form being regularly tapering, with a straight upper profile, and the large nostrils situated about one-third the distance from the base to the tip. A less



MOUNTED IN THE ROWLAND WARD STUDIOS

A PAIR OF SMEWS.

important, because not absolutely constant character is the presence of only sixteen tail-feathers. The wings are short and pointed; and the legs are situated far back on the body, with the shank proportionately short and the foot large. Both sexes are crested.

As regards colouring, the smew, which is the smallest representative of the group, is easily recognised by the pied and satiny plumage of the drake; the black forming a patch in front of and around the eye, another, of triangular shape and greenish tinge, on the hind margins of the drooping feathers of the nape of the neck, and two crescentic bars on each side of the chest, and also occupying the back and the greater wing-coverts, with the exception of two bars,

as well as making borders to the outer side of the scapular feathers. For the period that the non-breeding dress is worn the drake becomes like his partner in the matter of plumage. With the exception of a black patch in front of each eye, the upper part of the head in the female is reddish brown; but the rest of the head and all the neck, except a grey stripe down the hind surface, as well as the upper-parts generally are ashy grey, becoming somewhat darker on the back; the under-parts are, on the other hand, white, with a grey tinge on the fore part of the breast. In birds of the year the plumage is generally similar to that of the female, but the upper-parts are mottled with grey. In newly hatched smews the upper-parts, inclusive of the back of the neck and most of the head, are blackish brown, but there is a white spot at the base of the wing, and a pair of such on each side of the back, while the breast and flanks are greyish brown, and the remainder of the under-parts white. The breeding-haunts of the smew include the extreme north of the Old World, the British Museum possessing eggs from Lapland, the Kola Peninsula, the Petchora Valley, and the Ural Mountains, while others have been obtained from Siberia. In winter, at which season it is alone found in the British Isles, the smew journeys southward as far as the Mediterranean countries, the Punjab and other districts of north-western India, China, and even far Japan. Although far from numerous and never met with in large flocks, the smew visits all the coasts of the British Isles in winter, but more especially those on the east side, being considerably more rare on the west. The great majority of these visitors are, however, either birds of the year, in their immature plumage, or females, and a British-killed drake of this species in the full glory of its black and white livery is esteemed a rarity. To Ireland the species is a rare and irregular, although probably annual visitor, seldom making its appearance till mid-winter, and being less uncommon in Leinster and Ulster than in either of the two sister provinces. As a rule, such smew as visit our islands prefer the protection afforded by harbours and estuaries where the water is more or less brackish or even fresh, to the open sea on the one hand or to inland lakes on the other. In very severe weather they will, however, seek the shelter of inland waters, and most of the specimens offered from time to time for sale in Dublin are stated to be obtained from such situations. In India during winter the species is nearly always met with on inland marshes and lakes, where it associates in small flocks or parties, consisting mostly of immature birds. Like all its kindred, this bird is an expert diver and swimmer, and if threatened by danger generally

endeavours to escape by plunging below the surface rather than by taking wing. Nevertheless, when once under way in the air, it is a strong and rapid flier. Smew seek their food by diving, after the fashion of the pochards and their kin, their main diet consisting of small fishes, water-insects, and crustaceans. In diving, the wings are employed to some extent to assist progress. At the proper season the nest, which is generally built in a hollow tree, contains a clutch of seven or eight creamy-white eggs almost indistinguishable from those of the wigeon, although said to be heavier. A pound and a half is the usual weight of a smew, the length of the adult bird being about 16 inches. No clue to the meaning of the name of this bird appears to have been hitherto obtained.

Goosander The goosander (the *Mergus merganser* of some writers and *Merganser merganser* of others) and (Merganser castor), merganser, together with their foreign representatives, are now generally separated from the smew to constitute a genus by themselves; the main distinction being the much greater relative length of the beak, which is considerably longer than the shank of the leg, and the constant presence of eighteen tail-feathers. In form, the beak is narrow and strongly hooked at the tip, with the terminal "nail" as wide as the upper half, and the nostrils situated at a distance of from a quarter to a third of the whole length from the base. The head is crested, and the tail wedge-shaped.

The drake of the goosander is the largest British representative of the whole group, measuring about 26 inches in length (different writers give this as from 25 to 28 inches!) and weighing from $3\frac{3}{4}$ to 4 lbs. It is characterised by the relatively small crest, the dark glossy green head and upper part of the neck, the white, tinged with salmon-colour (which rapidly fades after death), lower portion of the neck and under-parts, the black upper part of the back and scapulars, the white wing-coverts, the ashy-brown quills, the grey tail and lower portion of the back, the vermilion beak, orange-red legs and toes, and red eyes. In this dress the drake is indeed a gorgeously coloured bird, but for a short time after the breeding-season it reverts to the original non-breeding plumage, which is practically the same as that of the duck. The latter is remarkable for possessing a longer crest than her partner, and is further characterised by the reddish-brown head and upper half of the neck, ashy-grey upper-parts, white chin and adjacent part of the throat and wing-coverts, buff-tinged white under-parts, and grey and white flanks. Immature birds are generally similar to the

duck ; males being distinguishable by the presence, as in the adult, of two distinct swellings on the windpipe, in place of one in females. In the merganser drake there is only one such swelling, while the duck has none. The duckling in down is dark wood-brown and sepia above, and dirty white below, with a white patch behind the wing and on the thigh, and a chestnut one on each side of the neck.

Briefly, the distinctive characteristics of the adult drake are the blackish-green head and upper part of neck and white under-parts ; and



MOUNTED IN THE ROWLAND WARD STUDIOS

GOOSANDER (MALE AND FEMALE).

of the duck, the rufous head and upper half of the neck, the white chin, and the grey back.

The goosander is a much less exclusively northern bird than the smew, as it nests in parts of central Europe, such as Mark Brandenburg, as well as in Iceland, Finland, northern Russia, and thence eastwards through Siberia to the Pacific, on the American side of which it is represented by the closely allied *Merganser americanus*. In winter it visits the coasts of the Mediterranean as well as western Europe generally, and likewise the Black and Caspian Seas, China, and Japan. The goosander inhabiting the southern districts of Central Asia and the Himalaya (where it breeds), and migrating to India and Burma in winter, has been regarded as a distinct species, on account of its slightly shorter beak, the narrower black borders on the hind wing-quills of

the drake, and the apparently duller and browner hue of the head and neck of the duck. Such trivial differences can, however, scarcely be regarded as of more than racial importance, so that this Asiatic bird seems best designated *Merganser castor comatus*. To the greater part of the British Isles, where it may be found alike on the sea and on freshwaters, the goosander is a rare and late winter-visitor, making its appearance for the most part only in the depth of winter. In Scotland, and more especially on the west coast, it is, however, a much less uncommon visitor, and in a few localities, such as Argyllshire, Sutherlandshire, Perthshire, Ross-shire, and some of the islands of the Hebrides group, it occasionally tarries to breed. Of a clutch of eggs taken on Loch Awe in May, one specimen is preserved in the British Museum, and in July 1871 a duck and ducklings of this species were seen on the same piece of water. Where old trees occur, the nest of the goosander is placed in a hollow trunk ; but failing these it may be situated in the cleft of a rock, while the birds will readily nest in boxes placed for the purpose. The down with which the nest is lined and filled when the eggs are laid is grey ; this alone being sufficient to indicate that the species build in holes or clefts, all ducks which nest in the open having brown or blackish down. From eight to a dozen eggs, which are creamy buff in colour, constitute a clutch ; these being laid in southern Scandinavia and Scotland from the latter part of April to about the middle of May, although farther north the laying season may be delayed till June. To Ireland the goosander is a rare and irregular visitor, although it seems probable that some individuals make their appearance every year.

As a rule, the goosander prefers fresh or brackish to salt water ; and in India during the winter may be observed in small parties on rivers and lakes, although it of course pairs off for the breeding-season. In general habits, as well as in the nature of its food, it is very similar to the smew ; in rising from the water it is somewhat slow and heavy, but when once fairly on the wing flies well and strongly. When diving, it is stated to be able to remain under water for a couple of minutes at a time. Its harsh note is of the type characteristic of diving ducks in general.

Merganser (Mer- The merganser, or red-breasted merganser as it is
ganser serrator). commonly called (the *Mergus serrator* of some
 writers), may be distinguished, apart from its inferior
 size and weight, from the goosander by the upper part of the breast
 of the drake being rufous with black markings, and by the brown back

and rufous streaks on the chin of the duck. The former sex is further distinguished by the rufous fore part of the neck below the white collar, the black patch with square white spots on the sides of the anterior portion of the breast, the broad white collar, interrupted along the back of the neck by a narrow black line running from the head, and the two black bars across the white wing-patch; the head and upper part of the neck being dark glossy green, the back and inner scapulars black, the outer scapulars mainly white, the hind part of the back and tail-coverts finely barred with grey, the breast and under-parts white, the beak dark reddish brown, with vermilion margins and a black "nail," the legs and toes vermilion, and the eyes orange-red. In non-breeding dress, which is worn only for a short time after the nesting-season, the plumage of the drake is practically the same as that of his mate. The female merganser, although smaller, is very similar to the goosander duck, but has a shorter crest, the chin streaked with rufous, the back brown with grey margins to the feathers, a black bar across the white wing-patch, and no swelling on the windpipe. Young birds are like the duck, the males having a single swelling on the windpipe. The duckling is dark brown above and white below, with a white spot on each side of the wing, a second on the side, and a third near the tail, white cheeks, and a rufous streak below the eye continued down the side of the neck to form a conspicuous chestnut patch. The drake measures about 22 inches in length, and weighs about $2\frac{3}{4}$ lbs.



MOUNTED IN THE ROWLAND WARD STUDIOS

MERGANSER (MALE).

Although naturalists separate the American from the Old World goosander, all are agreed that no such distinction can be made in the case of the merganser, which is consequently a circumpolar species,

breeding in the colder parts of the northern hemisphere, and in winter visiting the Mediterranean, the Russian inland seas, south-western Asia, and Baluchistan, China, Japan, and the United States and Bermudas. In addition to its circumpolar habitat, the merganser is further noteworthy as being the only member of the group which habitually breeds in the British Islands, where, however, its nesting-range is, at least normally, restricted to the Shetlands, Orkneys, Hebrides, Scotland (mainly in the north and west), and Ireland, although an adult male has been seen in Norfolk during the summer. In England it is, as a rule, merely a winter-visitor to the coasts, seldom, except under stress of weather, venturing any distance inland. Still, it may occasionally be seen some distance away from the sea. In Scotland its breeding-resorts may be either on inland lakes or on the coast; and in the Isles, Stromness in Orkney, and Dunvegan in Skye, are well-known nesting-resorts, from both of which the British Museum possesses eggs. In Ireland, where it is known as the shell-duck or spear-wigeon, it has an extensive and increasing breeding-range from Kerry to Donegal and Down, but in the east and south is generally known only as a winter immigrant. Within its nesting-area it breeds alike on the shores of estuaries and on the islands of the numerous inland lakes; and is in some districts one of the commonest of the resident representatives of the duck tribe. In winter the mergansers desert their inland breeding-resorts for the sheltered estuaries and inlets of the coast, where food is more easily procured, and where they are joined by immigrants from the north.

June appears to be the general time for nesting in Ireland, although eggs are sometimes taken in the latter part of May. Rank herbage fringing the lakes is stated to be the favourite situation for the nest, although this may be in a hollow in open shingly ground, or even at the root of a tree. As would be expected from such breeding-sites, the down with which the nest is supplied is, in place of the pale grey of that of the goosander, greyish brown, with a dull white central star and hoary tips to each filament. Usually the clutch is smaller than that of the goosander, comprising from six to nine eggs, although occasionally the number may reach half-a-score, or even a dozen. In colour the eggs vary from olive-stone to creamy buff, and in length from 2.45 to 2.65 inches, being thus slightly smaller, on the average, than those of the goosander, which range from $2\frac{1}{2}$ to a point below 3 inches. Nothing noteworthy in the matter of habits appears to distinguish the merganser from its cousin the goosander.

The hooded merganser (*Merganser cucullatus*), of Greenland and

North America is too rare a visitor to this country to merit a definite place in the British list. Indeed, up to the year 1900 only about thirteen instances of the occurrence of the species appear to have been recorded, and of these at least three are doubtful. On the other hand, it is only fair to state that in four of these instances at least two birds were reported. Out of the thirteen occurrences four are claimed by Ireland (of which at least one is doubtful) and there may be a fifth. Perhaps this is a rather lower percentage than might have been expected from the habitat of the species. Two of the occurrences are Scottish; while two others are East Anglian.

From the fact that the notches on the edges of the beak are shorter and blunter, and not distinctly inclined backwards at the tips, the hooded merganser is generically separated by some writers from its kin under the name of *Lophodytes cucullatus*. A handsome semicircular crest, black in front and white tipped with black behind, characterises the drake of this species.



MOUNTED IN THE ROWLAND WARD STUDIOS

YOUNG MERGANSERS.

Cormorant
(*Phalacrocorax*
carbo).

The cormorant (literally "sea-crow") is the first of three British representatives of an order which includes not only the cormorants and gannets, but also the pelicans, frigate-birds, and tropic-birds.

For this group the name Steganopodes is commonly employed, and it is an excellent term, insomuch as it refers to the uniting of all four toes by webs, which forms the most easily recognisable character of the whole assemblage. Nevertheless some writers prefer to supersede it by the term Pelicaniformes. Agreeing with the duck group (Anseres) in the closed type of palate and also in the oval form of the apertures of the nostrils in the dry skull, the cormorants and their relatives differ by the inclusion of the hind-toe in the webbing of the foot, as well as by the abrupt truncation of the hind end of each half of the lower jaw behind its articulation with the skull, and also by the absence of flat surfaces on the base of the skull for the articulation of the hind movable bones of the palate. On the other hand, both groups agree

in having the oil-gland tufted ; but the Steganopodes are peculiar in having the tongue rudimentary, and also by the frequent welding of the merry-thought or furcula with the upper end of the large breast-bone. No constancy is to be found in the degree of development of the pair of blind appendages (cæca) to the intestine. The feathers have either no after-shafts or merely rudiments thereof ; and there are no featherless tracts on the sides of the neck. No distinctive characteristics can be drawn from the eggs ; but an important difference



MOUNTED IN THE ROWLAND WARD STUDIOS

CORMORANT.

from the ducks is to be found in the condition of the young when first hatched ; these being in all cases blind and helpless, so as to require feeding by their parents for a considerable time, although in some instances they are naked, and in others clothed with down. Most of the birds of this group are of large size, and none are very small, while all frequent the coast or the open sea.

In habits they differ considerably, the frigate-birds and tropic-birds spending most of their time in the air, while cormorants and gannets prefer the rocks and the water. Cormorants are indeed not far removed in their

general habits from smews and mergansers, to which they approximate to a considerable degree in their outward appearance. Probably, however, this resemblance, such as it is, may be attributed to adaptation to a very similar mode of life ; and the affinities of the Steganopodes are apparently much closer to the Accipitres, or diurnal birds-of-prey.

No one is, of course, likely to confuse a cormorant or a shag with any other British bird, or to fail to recognise them when met with, but it may be well to mention that the family (Phalacrocoracidæ) to which they belong is characterised by the small and almost closed nostrils, and the long and slender beak, which may be either forked or straight (darters) at the tip. All of them are diving birds, living

on fishes, with dark-coloured plumage (at least on the upper-parts), long neck, stiff tail-feathers, and legs placed far back on the body. But little seasonal change is noticeable in the plumage of the adults, which is also nearly, if not quite, similar in the two sexes.

From the tropical darters the cormorants, of which there are numerous species, mostly from the southern hemisphere, are distinguished by their sharply hooked beaks, furnished at the tip with a structure somewhat resembling the "nail" of the ducks and geese, and with smooth cutting edges.

The true, or black cormorant is much the larger of the two British representatives of the genus, measuring nearly a yard in total length, and weighing from $7\frac{1}{2}$ to 8 lbs. It is further characterised by its fourteen tail-feathers and the generally black hue of the plumage. The feathers display a metallic lustre, those on the upper part of the back, as well as the scapulars and wing-coverts, being bronzy brown with steely-blue edges, while those of the under-parts are bluish black. From February till May both sexes assume a breeding-plumage, in which the black of the head is lighted up by long silky plumes, while a dark crest (larger in the male than in the female) makes its appearance on the crown, the bare skin on the throat develops a broad white border, and a snow-white patch contrasts with the blackness of the thigh. The emerald-green eye is one of the most beautiful features in the cormorant; below the eye the bare patch of skin is greenish brown, while that on the throat is lemon-yellow; and the legs and toes are blackish. The full plumage is not attained till the second year, and young birds are brown above and white with brown mottling beneath, while the eye is brown in place of green. When first hatched the blind nestling is quite naked, although it soon grows a thick coat of black down. A noteworthy feature in regard to nestling cormorants is that the nostrils are open and functional, and it is only as development proceeds that they become nearly closed, when breathing takes place through the mouth, as may be seen when full-grown birds "hang themselves out to dry" and sit with gaping beaks.

Considerable variation apparently exists in regard to the size of adult cormorants, some writers giving the maximum length as 32 and others as 36 inches. Apparently the males are generally somewhat superior in size to their mates.

The range of the cormorant comprises the greater part of the Old World, inclusive of Australia, together with Greenland and the Atlantic coast of North America. With such an extensive distributional area, the natural conclusion would be that these birds nest

in the far north, and visit India, Africa, and Australia in the winter. As a matter of fact, they breed throughout this extensive area, the British Museum collection containing eggs from regions so far apart and so diverse in climate as Greenland, southern India, and Australia and Tasmania. Why one bird should have a cosmopolitan breeding-range, while a second must needs travel thousands of miles to produce and rear its young is one of the unsolved mysteries of bird-life, which merits the best attention of ornithologists.

Although to a great degree a bird of the sea-coast, where in this country it breeds in colonies, the cormorant, especially during winter, is often to be met with on the banks of rivers a long distance inland; and in India it habitually frequents freshwaters far distant from the ocean, where it may be seen either alone or in company. In the British Islands, where they are much more common on the east coast of the mainland to the northward of Flamborough Head than farther south or than on the opposite side of the country, cormorants usually breed on rocks, selecting as their resorts in some cases islands in inland lakes. In certain districts, however, more especially in Ireland, they resort for nesting-purposes to trees, which although frequently low, may be of considerable height. In India trees growing in or near water form, indeed, the general nesting-resorts of cormorants; the birds congregating in vast colonies, and making the ground below look as though it had been splashed with whitewash, as is the case with the rocks to which these birds resort in our own islands.

In this country, at any rate, cormorants appear to subsist exclusively on fishes, which they capture by diving, when they propel themselves by their feet alone. That they consume an enormous quantity is quite evident; and as these and other fish-eating sea-birds appear to be on the increase, as the result of legislative protection, it will probably ere long be found necessary to inquire to what extent they diminish the available supply of food-fishes. Young cormorants take the food brought to the nest by their parents by thrusting their heads into the mouths of the latter and seizing with their beaks such fish as they can find in the crops. The recent exhibition in London of a party of trained birds has rendered us all familiar with the fact that tame cormorants are employed in China and Japan, as well as in some parts of India, to capture fish for their owners. How large a weight of fish a cormorant will consume in a day does not appear to be ascertained; but that it is very considerable may be inferred from the fact that these birds will swallow quite large eels at a single meal. Sometimes, indeed, they will attempt to swallow eels too large for their

gullets, an instance having been recently recorded where a three-quarter-grown cormorant was choked by one of these fishes.

One of the favourite British nesting-resorts of the cormorant is the Farne Islands, off the Northumberland coast. Here the exceedingly evil-smelling and filthy nesting-colony is situated on a low reef not more than about a dozen feet above high-water mark on its highest side. The huge nests of seaweeds, plant-stems and turf are situated on ground almost bare of vegetation; and receive their complement of elongated pale-green eggs towards the latter part of March or early in April. The period of incubation appears to be about four weeks; and both birds take their turn at brooding. This, by the way, may suggest that the assumption of a special breeding-plumage by both sexes may have some connection with the sharing of the duties of incubation. When in the nest, the eggs are so thickly coated with a layer of chalk and filth that their true colour is more or less completely concealed. In Great Britain the number of eggs is given by one writer as two or three, and by a second as three or four; but in India the number is said to range from four to six, or even seven. From $2\frac{1}{2}$ to $2\frac{3}{4}$ inches is the usual length of the eggs, which are only a little over $1\frac{1}{2}$ inches in width.

Shag
(*Phalacrocorax*
graculus). A smaller bird than the cormorant, the shag, or green cormorant, does not exceed 30 inches in length, and weighs from 5 to 6 lbs. It is, however, more specially distinguished by having only twelve tail-feathers. In the breeding-plumage, worn from February to May, the head is ornamented with a partially erect crest; in colour the plumage of the head, neck, and under-parts is dark bottle-green with reflections of bronzy green, while the feathers of the back, together with the scapulars and wing-coverts, display the same tints, but are bordered with velvety black; the gape and interior of the mouth are orange-yellow; the bare skin of the throat is black with yellow spots, and the eye emerald-green. The orange-yellow of the mouth presents an analogy with the glistening white of that of the sperm-whale, which is known to act as a lure in attracting fishes to their doom; and one cannot help wondering whether the same may hold good in the case of the shag. At the close of the breeding-season the head-crest disappears, and the feathers surrounding the bare throat-patch are replaced by white ones. In young shags the feathers of the upper-parts are brown, darker on the edges than elsewhere, glossed with green; while those of the lower surface of the body are brownish ash

blended with white. A somewhat browner tint of their down distinguishes the nestlings from those of the cormorant.

The name shag is said to be the slightly modified Gaelic term for a hawk. Unlike the cormorant, the shag has an exceedingly restricted distribution, and is, in fact, confined to western Europe, where it ranges from Iceland and the Färoes to Scandinavia and the Atlantic coasts of France and Portugal. In the Mediterranean it is replaced by a species (*P. desmaresti*) which ranges eastward to the Black and Caspian Seas. Even in the North Sea it is an uncommon bird on the eastern coasts,



MOUNTED IN THE ROWLAND WARD STUDIOS

SHAGS.

and has well-nigh disappeared on the corresponding side of the Baltic. The Indian shag (*P. fuscicollis*) is a distinct species. Although resident on all the British coasts, the species is in most districts less common than the cormorant; but on the westward and northern isles of Scotland it may perhaps outnumber the latter, and on the rocky parts of the coast of Dorset it is the sole representative of the genus. Everywhere the bird is more abundant on the western than on the eastern coasts of Great

Britain; the rocky coasts of Wales being some of its favourite resorts. In Ireland it breeds wherever the coasts are rocky and precipitous; and in Galway, Mayo, and Donegal is considerably more numerous than the cormorant.

In two respects the shag differs from the cormorant in the matter of habit. In the first place, it is essentially a marine species, only straggling occasionally into freshwaters; and, secondly, it invariably breeds on rocks and never in trees. Curiously enough, in both these respects it differs from the Indian shag, which is almost entirely an inland bird. When caves are available, both the true and the Mediterranean shag make use of them for breeding-purposes; and

when these caves, as on the Mediterranean where they can often be approached only from the sea, are tenanted by a large number of birds, they are indescribably filthy and loathsome. Either caves, as on the Dorsetshire cliffs, or crannies in the rocks serve as nesting-places. May and June constitute the nesting-season in Dorset; but the period of laying is very irregular, as eggs and nearly full-fledged young may be found at the same time. It has been stated that shags use their wings when diving; but this is probably incorrect, and, except in the two points mentioned above, they agree in general habits with cormorants. An indication of the depth to which they will dive is afforded by the fact that one has been taken in a crab-pot placed in 20 fathoms of water. The eggs are similar to those of the cormorant, but somewhat smaller.

Gannet Although nearly related to the cormorants, the
(*Sula bassana*). gannet, or solan goose, and its relatives are regarded as representing a distinct family—the Sulidæ—sufficiently characterised by the stout, conical, and pointed beak, in which, when adult, the nostrils are completely obliterated. All the members of this family, among which are included the so-called “boobies” of the Tropics, are large birds with a black and white or brown and white plumage in the adult condition. Young birds, on the other hand, are dark-coloured. In this respect gannets resemble gulls and swans; and the plumage of the adults may probably be regarded as a persistent breeding-dress, which has been acquired by both sexes. In habits gannets are birds of the open ocean, feeding on fish, and resorting to land only for the breeding-season. They are found in all oceans save those of the Arctic and Antarctic; Iceland apparently forming the northernmost breeding limit of the European species.

Considerable interest attaches to the etymology of the names of the gannet, both popular and scientific. In the first place, it may be noted that although the species was scientifically named by the Swedish naturalist Linnæus, it takes its title *bassana* from the Bass Rock in the Firth of Forth; this being doubtless accounted for by the fact that there are no breeding-places in Scandinavia. *Sula*, it appears in the Scandinavian name of the bird; and from *sula* or *sola* we have “solan,” which is not, as might be supposed, an adjective, but merely *sola* with the article *n* (=the) added, according to Scandinavian fashion, and thus means “the sola.” Gannet, on the other hand, is an Anglo-Saxon name equivalent to the German *gans* (goose). “Solan goose” is accordingly a term which cannot be defended, and should be

superseded either by the "sola" (or "sula"), or the "sola-goose." It is, however, too well established to be altered, even if such a course were desirable. It should be added that by some writers the gannet is called *Dysporus bassanus*, instead of by the name here employed. No one is likely to mistake a gannet for any other species, especially when it is borne in mind that it is the only British bird other than the cormorant and shags in which all four toes are joined by webbing. A very short description will therefore suffice. In length a gannet measures approximately the same as a cormorant, that is to say, about a yard, but it is a somewhat heavier bird, generally weighing

about $8\frac{1}{2}$ lbs. When fully adult, the plumage is mainly white, except on the hind part of the head and neck, where it is tinged with creamy buff, and the greater wing-coverts and quills, which are black; the eyes being yellowish white, the beak bluish grey, tinged at the base with green, the bare skin on the throat and round the eyes black, and the legs and toes black with greenish blue stripes.



GANNET (ADULT MALE).

This adult livery is not fully developed till about the end of the third year, and is gradually acquired. Younger birds, before they have begun to show an admixture of white feathers, are sooty brown spotted with white above, and mottled white and brownish grey below. At an early period the nestlings, which are at first blind and naked, develop a thick coat of snow-white woolly down, when they look for all the world like the "fluffy" birds made as toys for children.

The range of the gannet appears to be restricted to the two sides of the North Atlantic, and its breeding-places, which are very local, include the Magdalenes and other rocky islets in the Gulf of St. Lawrence; Iceland; the western Färoes; Borrera, close to St. Kilda, in the Outer Hebrides; Sulasgeir, or North Burra, on the north-west side of the Shetlands; Suleskerry Stack, off Stromness, in Orkney;

the Bass Rock ; Ailsa Craig ; Lundy Island, in the Bristol Channel ; Grassholme, off Pembrokeshire ; and three or four groups of islets off the Irish coast. It will thus be seen that, as with the boobies of the Tropics, all the breeding-places are islands ; among which Sulasgeir and Suleskerry take their names from these birds. In winter gannets wander as far south as Mexico on the American, and to the Mediterranean and North Africa on our own side of the Atlantic.

Unless when occasionally driven inland by severe storms, gannets, as already mentioned, are denizens of the open sea at all times of the year except the breeding-season. Birds of powerful, rapid, and sustained flight, gannets pass the greater portion of their time on the wing, seldom swimming or floating on the water except when digesting their food or sleeping. When good fishing-grounds are not to be met with in the neighbourhood of their breeding-places, they make long daily journeys in search of supplies ; and it is not uncommon to see them soaring in circles high up in the air. Towards the latter part of March a few gannets begin to make their appearance on the Bass Rock, Ailsa Craig, and other breeding-resorts ; their sojourn at first is indeed only brief, but gradually they stay longer and longer and are reinforced by the arrival of other members of the community, till at length the whole colony settles down seriously to the work of nesting. The number of birds which frequent the Bass Rock in the height of the breeding-season has been estimated as about six thousand pairs, and the same total is given for Ailsa Craig. Possibly the estimate in the former instance somewhat understates the real facts of the case, as in the year 1831 the total number of pairs was put down at no less than ten thousand ; and although the hosts are known to have decreased since that date, it is scarcely probable that the diminution would reach a total of four thousand pairs. On the Bull Rock, off the coast of Cork, the number of breeding pairs has been estimated as between two hundred and fifty and three hundred. Nest-building on the Bass begins early in May ; but, as is the case with shags, the task is not undertaken simultaneously by all the birds, and while in some nests the single egg may be well advanced in incubation, others may be empty. The nests on the Bass are made of turf, seaweed, and dry grass, and appear to be added to as incubation proceeds ; but they are frequently so trodden down and so buried in filth that the structure is almost obliterated, which may account for the statement that the eggs are laid on the bare rock. In the height of the season every available ledge has its occupants, from the top of the cliffs, amid crumbling debris, to the precipitous sides, where approach can only be

made by means of ropes. The filth and smell are noisome in the extreme; and the sitting birds hiss fiercely at the intruder, and are with difficulty forced to desert their charges. Young gannets form a valuable harvest to the peasants living in the vicinity of their breeding-place; the "harvest" taking place in August. In North Burra between two and three thousand birds used to be taken in a season, and from fifteen hundred to a couple of thousand on the Bass, where, however, the "catch" has now fallen to something like eight hundred.



MOUNTED IN THE ROWLAND WARD STUDIOS

IMMATURE GANNET.

Formerly the young birds from the Bass were eaten; but their main use is now for oil and feathers. When cleaned from its chalky coat and filth, the single egg, which measures from rather less than 3 to $3\frac{1}{4}$ inches in length, is pale bluish in colour. Incubation lasts about forty days.

Gannets take their prey, not by diving in cormorant-fashion, but by plunging straight down upon them from a considerable height; herrings and pilchards forming their favourite food. The practice of capturing these birds by fixing one of these fish on a board which is set adrift, is almost as old as history.

From the middle of the seventeenth century up to the present day occasional statements of the capture of pelicans in the British Islands have been published (one such record having been made in 1905). There is, however, little doubt that all such instances refer to birds escaped from captivity; and there is no evidence that pelicans have ever been natives of this country since the prehistoric epoch, from deposits of which date in Cambridgeshire and Somersetshire their remains have been recorded.

Peregrine Falcon By old-time writers the birds-of-prey, inclusive of falcons, eagles, and vultures on the one hand, and of owls on the other, were by common consent placed at the head of the class Aves, as were the beasts of prey at the head of the Mammalia; the post of honour being assigned in the one case to the golden eagle and in the other to the lion. This view is, however, in great part a misconception; the gannet being just as highly specialised and adapted for its own particular mode of life as is the golden eagle or the peregrine falcon for its line of existence, and to say that one is higher than the other is thus incorrect. Moreover, the diurnal birds-of-prey, such as falcons, eagles, and vultures, have little in common with owls, and the former are now alone included in the order Accipitres, whose nearest affinities are probably with the Steganopodes, which have just been considered. Of this group the peregrine, or "wandering," falcon is the typical representative, and is accordingly assigned the first place.

The Accipitres as a whole form a group so easy of recognition that it is unnecessary on the present occasion to discuss their structural features at any length. It is, however, important to mention that they agree with the cormorants and gannets in the nature of the palate (which is of the bridged, or closed type), and in the shape of the apertures of the nostrils in the dry skull, this being a broad oval, and not a long slit. The oil-gland is also tufted, as in the latter group; but, on the other hand, the feather-bearing tract on the back of the neck is defined by bare spaces. In all the members of the group the lower jaw terminates behind in the abrupt manner characteristic of the Steganopodes; and in the three families with which we have to deal on this occasion the base of the skull is not provided with flat surfaces for the articulation of the hind movable bones of the palate, although these are present in certain other families.



MOUNTED IN THE ROWLAND WARD STUDIOS

PEREGRINE FALCON (MALE).

Among the more conspicuous external characters of the group may be mentioned the strong sharply curved beak, in which the upper half is much longer than the lower, and has its downwardly-bent tip vertical. The association of a beak of this type with the presence of a bare membrane (the "cere") at its base, in which the nostrils are pierced, is, indeed, absolutely distinctive of the order. The powerful feet are furnished with four toes, suited for grasping, and provided with strong curved claws, but are never webbed. The limitation of the number of primary quills in the wing to eleven is characteristic of the group. Although the young are hatched in a helpless condition and require to be tended for a long time by their parents, they differ from those of the cormorants and gannets in coming into the world provided with a coat of down. As this is white in all cases, it will be unnecessary to refer to the colour of the nestling when describing the different species. As a rule, the adult female is considerably the superior of her mate in the matter of size. Very frequently the two sexes are more or less nearly alike in the matter of colour, and in no case is a seasonal breeding-dress assumed, although the adult plumage of many hawks may be a permanent livery of this class. The nest is generally a large and loose structure of sticks, which may be built either in trees or among rocks. As regards the eggs, these are so variable in shape, texture, colour, and number, that no description which will apply to the group generally can be given. In the case of some species, for example, the eggs are white, in others they are spotted or blotched, while in yet others they display an almost continuous mahogany-colouring. All the members of the order subsist on animal substances, and the majority kill their own prey.

The Falconidæ, of which the peregrine is the type (as it is of the genus *Falco*), include the great bulk of the more representative members of the order—in fact all the European and Asiatic species with the exception of the vultures and ospreys. They may be briefly characterised by the absence of after-shafts to the feathers, the complete feathering of the crown of the head, and the impossibility of turning the outer toe backward. All the members of the group considered here belong to the subfamily Falconinæ, of which it will be unnecessary to discuss the characteristics. It may be mentioned, however, that in the more typical members of the group the plumage of immature birds is generally some shade of chestnut with black streaks on the under-parts. In some cases this plumage is retained throughout life (apart from annual moultings); but more generally the adult males, or both sexes together, assume a slaty-grey plumage

(which, as already mentioned, may represent a permanent breeding-dress), while the streaks on the under-parts give place to transverse barrings. Occasionally, however, white is the prevalent adult colour, although only in northern species.

The true falcons, constituting the genus *Falco*, belong to a group in which the upper half of the beak has a distinct "tooth" on each side; and are specially characterised by the general similarity in the colouring of the two sexes, the fairly large bodily size, the rounded tail, the long second wing-quill, which exceeds all the rest in this respect, and the much greater length of the first as compared with the fourth quill. Another characteristic feature is the presence of a round knob in the centre of the circular nostril.

Falcons have a world-wide distribution, and are perhaps the boldest of the whole tribe, attacking without hesitation birds and even quadrupeds far superior to themselves in size, on which account they have from time immemorial been employed in the sport of hawking. As is well known, they attack by soaring high above their intended prey, and then rushing down with one fell swoop, which if unsuccessful is generally not repeated. The fatal blow is delivered by means of the hind-claw, and not, as is often depicted, with the beak.

The peregrine is by far the finest and handsomest of the indigenous British representatives of the group. On the present occasion it will be unnecessary to point out in what respects this species differs from some of its foreign representatives; and it will suffice to state that it belongs to a group in which the outer is larger than the inner toe, and the first quill larger than the third and notched on its inner web.

Size alone distinguishes the peregrine from other indigenous British falcons, the female (which in falconry is alone termed the falcon) measuring 18 inches in length and weighing as much as $2\frac{3}{4}$ lbs.; while the male, or tiercel, attains a length of 15 inches with a weight of two or three ounces short of a couple of pounds. In the adult plumage the upper-parts are slaty grey with bars of darker grey; the side of the head is marked by a dark patch immediately above the neck, bounded in front by a dark grey "moustache" extending downwards from the cheek; and the eyes are hazel, and the "cere" and legs bright yellow. Females differ from males in the heavy transverse barring of the breast; these bars in the latter being very narrow, and often broken up into small spots or dots. In immature birds the feathers of the upper surface are dark greyish brown with paler margins, and those of the lower surface rusty

buff streaked with dark brown ; the legs being livid bluish grey. The slate-grey back of the adult is only gradually acquired ; and in very old birds the markings on the breast tend to diminish and finally more or less completely disappear. The white down of the nestling is unusually long.

Having an almost world-wide distribution, although visiting the warmer parts of its range, such as India and Burma, only during the winter months, the peregrine frequents districts where water is abundant, and in England at the present day chiefly nests on sea-cliffs, although in Wales, Scotland, and Ireland it is still to be found building on inland cliffs. Very rarely in our own islands does it forsake cliffs for trees as nesting-resorts, although it is recorded to have done so in Ireland, and in parts of North America it is forced to select trees owing to the absence of cliffs. Of late years the species is stated to have become less uncommon on the coasts of the south of England and Wales than was the case some time previously ; and in Ireland it is comparatively common as a resident bird both on the sea-cliffs and the higher mountains of the interior. Indeed, comparatively few of its Irish breeding-places have been deserted ; although in England the birds have been completely exterminated in their old haunts. From Great Britain the peregrine betakes itself eastward or southward in autumn in search of warmer winter-quarters.

With their characteristic adroitness in giving appropriate names to animals the Americans call the peregrine the "duck-hawk" ; ducks and wading-birds in many parts of its resorts constituting its chief prey, although it often feeds on grouse, pigeons, and partridges, and has been seen to kill a snipe, while it will sometimes not disdain to make a meal off quite small birds.

Peregrines commence breeding in April, and are very faithful to their old haunts, to which (if unmolested) they return year after year ; while when one or other of a pair is slain, the survivor is generally not long in finding a new mate. When breeding on more or less inaccessible cliffs, peregrines give themselves little or no trouble in the matter of nest-making, the two, three, or occasionally four handsome eggs being laid on the bare rock, with only such protection against rolling off as may be afforded by the debris of former meals. The eggs, of which the longer diameter ranges a little on either side of a couple of inches, and the shorter a fraction less or more than an inch and a half, are subject to great variation in colouring ; but may be described generally as being clouded with some shade of bright chestnut, thickly overlaid with mottlings of dark rufous, which in some instances tends almost

towards blackness. On the other hand, buffish-white eggs with reddish-brown scattered blotches are not unknown.

A single example of the lesser falcon (*Falco feldeggî*), of the Mediterranean countries and Persia, was taken in Lancashire in 1904.

**Hobby (Falco
subbuteo).**

To a great degree a miniature of the peregrine, the hobby is best distinguished from that species by this marked inferiority in point of size, the females not exceeding 14 and the males 12 inches in total length. In the adults of both sexes the upper-parts are of the same slaty grey as in the peregrine, and the under-parts white with a broad blackish-brown stripe down the middle of each feather of the breast, and the hind portion of the abdomen and the long feathers on the legs rusty red. In immature birds the crown of the head is mottled with buff, while the feathers of the rest of the upper-parts are brown with yellowish-white edges, and those of the breast buffish white broadly striped with blackish brown. It may be added that the toes of the hobby are relatively (as well as absolutely) shorter than in the peregrine; the length of the middle one, without its claw, being $1\frac{1}{2}$ inches in the former against $1\frac{3}{4}$ inches in the latter.



MOUNTED IN THE ROWLAND WARD STUDIOS

HOBBY (MALE).

If we take the breeding-habitat of a species as its proper home, the hobby should be described as a denizen of the whole of Europe and northern and Central Asia, whence it journeys south to visit Africa and northern India in winter. Writers on British birds prefer, however, in general to describe it as a summer-migrant to the British Isles, which makes its appearance in April, although a later breeder

than any other member of the group. By no means common in Great Britain, where it is less infrequent on the east than on the west coast of Scotland, it is still more rare in Ireland, where it had been recorded only on ten occasions up to 1900, and has never been known to breed. In the southern, eastern, and midland counties of England hobbies' nests are recorded from time to time, Norfolk and Lincoln being two counties where these birds breed annually. In May 1907 a nest of the hobby was discovered in Surrey, originally containing four eggs, out of which two were hatched, and in due course the young took wing. Both parents were shot by a gamekeeper, and there is some doubt whether the young birds survived. As the north of England is reached hobbies become scarcer, and in Yorkshire a nest is a rarity; while a nest found in 1887 near Dunkeld afforded the first record of the species breeding in Scotland. In England hobbies have of recent years undoubtedly become much scarcer than formerly; and this is attributed to the fact of their breeding in the midst of the pheasant-rearing season, when their presence in a covert becomes too much for the peace of mind of the keeper, despite the nature of their food, which consists largely of dor-beetles, cockchafers, dragon-flies, and other big insects, captured, together with small birds, outside the woods. Evening and early morning are the favourite times for the hobby to be on the wing; its flight is as swift and active as that of the peregrine, although its pluck and daring stand on a much lower level. The speed of this bird in the air may be inferred from the fact that it frequently overtakes and kills swallows and martins, while it is stated to be able to outstrip even swifts. It is in spring, before large insects are abundant, that the hobby chiefly attacks birds, which must, however, also form the prey of those few individuals occasionally seen in Great Britain in winter. From Scandinavia to central Europe comprises the usual north and south limits of the hobby's breeding-range, while in the east China and Kamchatka are countries where the species is known to nest. In the matter of a repository for its eggs, the hobby apparently always avails itself of the nest of some other bird, such as a crow or a kestrel, which in some instances is not even repaired, although in other cases it is stated to be relined by the incoming tenant. From three to four or five is the usual number of the eggs, which are of the ordinary falcon type, being mahogany-coloured with darker blotches, and measuring about $1\frac{3}{4}$ inches in length, with a breadth of just over $1\frac{1}{4}$ inches.

•

Greenland Falcon (*Falco candicans*). With the Greenland, or white falcon, which is only an occasional straggler to the British Islands, we come to the first representative of the ger-falcons, or, as they are often called, jir-falcons or gyr-falcons; the name apparently having reference to the gyrations of their flight. Typically the ger-falcons are characterised by the equality in the length of the outer and inner toes, thus differing from the peregrine-group in which the former is the longer; and they are further characterised by the shorter and more rounded wing, in which the first primary quill is not longer than the third, and may be shorter. On these grounds the ger-falcons (which are superior in size to the peregrine) are referred by many ornithologists to a genus by themselves, under the name of *Hierofalco*. Since, however, the Indian saker, or cherrug falcon (*Falco cherrug*), forms in some degree a connecting link between the typical falcons and the ger-falcons, it seems preferable to retain the latter in the original genus.

Its white plumage and large size (length 23 inches in the female and a couple of inches less in her partner) render the adult Greenland falcon a bird which cannot be mistaken either when in flight or preserved in a museum. In the fully adult condition it is almost pure white with scarcely any spotting, except sometimes on the back, when there may be a variable number of oval black spots, the breast having either only a few such spots or being entirely white. On the upper-parts of young birds there are broad, more or less chevron-like brown markings, drop-shaped spots on the under-parts, and bars on the tail; the adult white dress being assumed after the first moult. In the adults the beak and the bare skin at its base ("cere") are pale yellow, while the eye is dark brown; but in young birds bluish grey replaces the yellow.

As might be inferred from its colouring, or rather absence of colouring, the white falcon is essentially an Arctic species, probably with a circumpolar range. From time to time, however, a certain number of, mostly immature, individuals visit the British Isles and other parts of north-western Europe, during the autumn and winter migrations. Up to the year 1900 it would appear that between thirty and forty instances of the occurrence of this handsome species in our islands had been recorded, a few of these being represented by two or more individuals.¹ There have, however, doubtless been others,

¹ Mr. Harting (*Handbook of British Birds*) records twenty-nine occurrences, inclusive of thirteen Irish specimens, but as Mr. Ussher (*Birds of Ireland*) claims nineteen from Ireland, the former list cannot be regarded as complete, as indeed is stated at its conclusion.

although these were not definitely distinguished from other species of the group. These occurrences include all parts of the United Kingdom from the Shetlands and Hebrides southwards. At the date mentioned nineteen authentic examples were definitely recorded from Ireland; but in 1905 the Irish list was increased by no fewer than nine specimens killed and identified, in addition to others seen, thus bringing up the total of identified examples to twenty-eight. All the nine specimens obtained in 1905 were killed on the west coast in March and April; they included three adult birds,—two females and one male. It is not a little remarkable that the Greenland falcon should visit Ireland in such comparative frequency, whereas, as mentioned later, the much nearer Iceland falcon very seldom makes its appearance. In the same season Greenland falcons were seen in Scotland.

In its native home the white falcon preys on ptarmigan, willow-grouse, and lemmings and other small rodents. Although in former days these birds were used for hawking herons and cranes, and in later times have been trained to capture hares and rabbits, they lack the superb courage and "dash" of the peregrine; and they also seem much less wary and suspicious of man, some of the Irish stragglers having been taken alive, while others were killed ignominiously with stones. As a rule, the eggs, which, like those of other ger-falcons, are lighter-coloured and more uniformly marked than those of the peregrine, are laid on the bare rock, although sometimes the nests of other birds are utilised for their reception.

Iceland Falcon The Iceland falcon (often known as *Hierofalco* (Falcon *islandus*). *islandus*, or *islandicus*) is now generally regarded as peculiar to the island from which it takes its name; the allied South Greenland and American birds being considered distinct species (*Falco holboelli* and *F. rusticolus*). In reality all three are probably nothing more than local races of the true ger-falcon (*Falco gyrfalco*) of Scandinavia and Northern Europe generally. Approximately similar in size to the white falcon, the Icelandic species may always be recognised by the feathers having a dark ground, with light edges, instead of a white ground, with or without dark spots or longitudinal markings. In the present bird there is considerable variation in markings and colour, some individuals being much darker than others, while others have the head white with brown streaks. Generally speaking, it may be said that the markings on the upper-parts take the form of white bars and spots, the latter made by the tips of the feathers; the quills are dark brown with white tips; the tail is ashy

tipped with white and barred with blackish ; the under-parts are white streaked with blackish drop-like spots down the middle of the breast, and barred along the flanks, the under tail-coverts being likewise barred ; the beak is pale blue, with the bare skin at its base, like the legs and toes, yellow ; while the eye is dark brown. Brown is the prevailing colour of the upper-parts in immature birds, with whitish edges to the feathers ; the tail being brown with broad white bars, the throat white, the remainder of the under-parts marked with broad brown streaks, and bluish grey replacing the yellow of the bare parts. A female Iceland falcon measuring 23 inches in length weighed 3 lbs. 14 oz., against 3 lbs. 11½ oz. in a female of the Greenland species whose length was 21½ inches.

Only thirteen instances (one represented by several individuals) of the occurrence of this species in the British Islands, exclusive of the Channel Islands, appear to have been recorded up to 1900, of which one alone was Irish. A second Irish example—an immature female—was, however, obtained in Galway in the spring of 1905. It should be added that among the various whitish falcons reported from different parts of the kingdom, but not definitely identified, some may have belonged to the present bird.

The true Norwegian ger-falcon (*F. gyrfalco*), which is too rare a bird in our islands to be accorded a definite place in the British list, is very similar in general colouring, when adult, to a peregrine, although of course distinguished by the characters of the wings and feet. The end of the tail lacks, however, the dark shade so distinctive of the peregrine. The head is always dark ; and the barring of the



ICELAND FALCON.

flanks is invariably darker than in either the Iceland or the south Greenland ger-falcon. Up to the close of last century only four British examples of this bird were recorded, namely, one from Sussex



MOUNTED IN THE ROWLAND WARD STUDIOS

ICELAND FALCON HOVERING.

in January 1845, a second from Suffolk in October 1867, a third from Norfolk in the spring of 1883, and a fourth from Essex in December 1891. A female provisionally assigned to this species was trapped at Hatfield Broadoak in December 1901.

Red-footed Falcon
(*Erythropus*
vespertinus).

At one time classed by some writers with the kestrels, and by others included in the genus *Falco*, the red-footed falcon is best regarded, partly on account of the marked difference in the colouring of the sexes, as the representative of a distinct genus of falcons, which also includes the eastern *Erythropus amurensis*. When fully adult, the males are almost uniformly dark grey, while the colouring of the females is more like that of a hobby than a kestrel. As in the peregrine falcon, the wing is pointed, with the second quill the longest, and the first longer than the third; but the foot is proportionately smaller, although larger than in kestrels, the middle toe being only slightly shorter than the shank of the leg. The tail, too, is rounded, and not of the graduated type characteristic of the kestrels.

In the adult male the general colour of the upper-parts is leaden grey, paler on the wing-coverts, while most of the under-parts is bluish grey, with faint dark streaks to the feathers, the abdomen and under tail-coverts being, however, together with the long feathers on the legs, rufous chestnut. The species takes its name from the bright brownish

red of the legs, the same colour obtaining on the bare skin at the base of the beak, although the eyes are light brown. The female, which measures $12\frac{1}{2}$ inches in length (against 11 in the male), has the head and neck chestnut, the remainder of the upper-parts slaty-grey with dark bars, and the under-parts rusty red inclining to buff on the tail-coverts; the colours of the bare parts being the same as in the male. In young birds the crown of the head is pale chestnut, the upper-parts are tinged with reddish brown, the forehead and throat white, and the under-parts rufous streaked with drop-like markings; the bare parts being reddish yellow.

From the evidence afforded by this species there can be little doubt that the grey tint of adult falcons and hawks generally is a permanent breeding-plumage, which has been acquired by both sexes; the female in the present genus being in the course of acquiring this special dress.

The summer home of the red-footed falcon is Russia and other parts of eastern Europe, as well as western Siberia. Stragglers reach Finland and the south of Sweden from time to time, while others visit the eastern coasts of Great Britain, and in some instances spread farther over the islands, a single example having been recorded in 1882 from Ireland. Nearly all these wanderers occur in spring and summer, and not during the winter-migration, when this species wends its way in thousands to South Africa. About thirty instances of the occurrence of this falcon in the British Isles were recorded up to the end of last century, several of these including two or more individuals.



RED-FOOTED FALCON.

Merlin As may be inferred from the remarks made in connection with some of the foregoing members of the group, considerable diversity of view obtains among ornithologists with regard to the classification of the falcons. This diversity is most strongly noticeable in the case of the merlin, or (*Falco tinnunculus*).

merle (blackbird) falcon, for whereas those writers who separate the ger-falcons from *Falco* include in that genus the present species, the scheme here followed, which does not recognise the generic distinctness of the ger-falcons, refers the merlin to a separate genus. On this scheme, the name of the species is *Æsalon regulus*, in place of the more familiar *Falco æsalon*.

The four species of merlin (inclusive of the red-headed African species, sometimes separated as Chicquera) are small falcons collectively characterised by the wing being more rounded than in the ger-falcons,



MOUNTED IN THE ROWLAND WARD STUDIOS

MERLIN.

so that the second quill is not the longest of the series, but is approximately equal in this respect to the third, as is the first to the fourth. The first and second primary quills are notched on the inner web, as in the ger-falcons; but, on the other hand, the inner and outer toes are unequal in length, as in the peregrine and hobby.

Approximately equal in length to the red-footed falcon, the male merlin (in addition to the above-mentioned generic characters) may be recognised by the dark shaft-streaks to the slaty-blue feathers of the upper-parts, coupled with the presence of a broad black bar across the tail-feathers a short distance in advance of the white tips. The fully adult female is stated to be generally similar to her mate, but, usually at any rate, is dark sepia-brown above, with the black tail-band

narrower, and preceded by four still narrower pale grey bars on a bluish ground. In both sexes the bare membrane at the base of the beak and the legs are yellow, while the eyes are dark. Except that their general tone of colour is more rufous, immature birds resemble the females.

The breeding-range of the merlin includes the cooler regions of the northern hemisphere, from Iceland and the Färoes in the west to Siberia in the east, but does not apparently embrace Kamchatka. Indeed, in travelling eastward from Europe a gradual diminution in the numbers of the species is noticeable as Siberia is traversed. In the main, the merlin is a mountain-bird, and in winter visits China, the western Himalaya, as well as Sind and the Punjab, the Mediterranean countries, and the north-eastern districts of Africa. It is known to occur so far north as Novaia Zemlia, but its breeding-range in this direction is probably limited by the 57th parallel of latitude or thereabouts. In the British Isles, where it is locally known as the stone-falcon, the merlin is a resident species, which nests for the most part in hilly and mountainous districts from the moors of Derbyshire and the peaks of North Wales to the Shetlands, as well as in many parts of Ireland. In the winter such members of the species as do not seek a milder climate by migrating south, descend to the plains and valleys, returning to their upland haunts towards the end of March or early in April, and commencing the business of laying about the middle of May.

Although few falcons have, for their size, greater courage and audacity than the merlin, which literally flies down its prey by sheer speed, the attacking powers of the species have been considerably exaggerated. It is, for instance, preposterous to imagine that a falcon of which the female only weighs 7 oz. and her partner an ounce or so less can be capable of striking down such a powerful and weighty bird as an adult grouse. That merlins do, however, inflict a certain amount of damage on young grouse, cannot be denied; and it is also certain that they will now and again strike down a snipe, while to small birds of the size of a lark they are most deadly foes, feeding indeed chiefly on prey of the latter description. A certain proportion of insects is, however, consumed during summer. Merlins breed on the ground, returning year after year to the same haunt with singular pertinacity. The nest is usually placed in a hollow, which is lined with a few roots, dried grass, or heather, and contains at the proper season four or five, or occasionally six rounded eggs of the usual falcon type, measuring a little more or a little less than $1\frac{1}{2}$ inches in length. Except when soaring preparatory to a swoop, merlins fly low; and in

former days these bold and dashing little falcons were great favourites for hawking both in Europe and Asia, being very easily trained.

Kestrel (*Tinnunculus alaudarius*). That handsome little hawk, the kestrel (so called from its plaintive cry—Latin *querela*), is the typical representative of a genus distinguished from the falcons not only by the smaller and weaker beak and feet, but also by the larger and distinctly graduated tail, in which the outer feathers are at least an inch shorter than the middle pair. The wing



MOUNTED IN THE ROWLAND WARD STUDIOS

KESTREL (MALE).

is also relatively shorter; and, as in the red-footed falcon, there is a decided difference in the colour of the plumage of the two sexes. The relative shortness of the foot is indicated by the circumstance that the length of the middle toe, exclusive of the claw, is only from two-thirds to three-fourths that of the shank of the leg, whereas in the typical falcons these two are more or less nearly equal. As to the best name for the kestrel, authorities are by no means agreed, many using the title *Cerchneis tinnunculus* in place of the one employed in this work. Other writers, who take a wider view of the limitations of the generic

group, solve the difficulty by retaining the species in the typical genus, with the designation of *Falco tinnunculus*

Although some writers put it as low as $12\frac{1}{2}$, the length of the adult male kestrel may be given as 14 inches; the female not being appreciably larger. The distinctive features in the plumage are as follows:—In the adult male the head, neck, the lower part of the back, and the tail are bluish grey, with a black sub-terminal bar and white tips to the feathers of the latter; the remainder of the upper-parts are mahogany-chestnut, marked with small black spots; while the under-parts are cinnamon with black streaks and spots. In the hen-bird, on the other hand, the upper-parts are rufous, with heavy black barrings, the tail showing numerous narrow black bars and white tips to the feathers. With the exception of being somewhat paler in colour, immature birds of both sexes are at first very like adult females, but at a comparatively early age the males are distinguishable by the appearance of grey on the tail.

Although in most parts of the country far less common than formerly, the kestrel, or windhover, is still one of the most abundant of the British hawks, and is a resident bird in all parts of the United Kingdom, but shows a tendency to migrate in autumn in a southerly and south-easterly direction. The individuals which leave the British shores in winter to enjoy a milder climate in southern Europe or northern Africa are, however, to a great extent, if not more than entirely, replaced by arrivals from the north. As regards the breeding-range of the kestrel, this includes the whole of Europe and temperate Asia, the Himalaya, and many of the hill-ranges of peninsular India, and probably Burma. During the winter kestrels spread all over India, southern China, and a considerable part of Africa. Although, like the hobby, prone to fly in early morning and in the evening, the kestrel presents a marked contrast to that species in its preference for open country rather than forests, being but rarely seen in the latter. Its characteristic method of hunting for prey by beating over the country, with occasional pauses over likely places, is so admirably expressed by its local title of “windhover,” and is at the same time so familiar to all dwellers in the country, that further reference to the subject is superfluous. Another peculiarity of the species is its fondness for “ground-game,” in contradistinction to birds, which it seldom molests; frogs, lizards, and field-mice forming a large portion of its prey, although insects—especially locusts, in countries where they occur—are also consumed to a larger or smaller extent. In Great Britain and Ireland the place of locusts in the dietary is taken

in spring by cockchafers, and later on by fern-chafers and dor-beetles, which are captured when flying. In seasons when short-tailed field-mice make their appearance in unusual numbers, kestrels are some of the predacious birds which assist in thinning the hosts of these pernicious rodents. It is stated that small birds have so little fear of this hawk, that they will permit it to make its appearance in their midst without signs of terror or even alarm. On the other hand, it has been conclusively demonstrated that when other food is scarce kestrels will not hesitate to levy toll on young pheasants or chickens. In the British Isles it appears that these hawks generally select the nests of other birds—more especially crows, ravens, magpies, or pigeons—as depositories for their own eggs; and that, as a rule, they do little or nothing in the way of repairing these more or less dilapidated tenements. They occasionally, however, nest in hollow tree-trunks, and in hilly districts in the clefts of rocks, when the eggs are laid on a bed of earth overlying the bare stone; while at least two instances are known of their building in corn-ricks. In India rocks, or, more rarely, ruined buildings form the favourite nesting-sites, trees being only utilised as a last resort. Four or five is the usual number of eggs in a clutch, although the number may vary from three to six, or even exceptionally seven. Measuring just over $1\frac{1}{2}$ inches in length by about $1\frac{1}{4}$ inches in breadth, the eggs are so thickly blotched with mahogany and brick-red, generally of two shades, that little or nothing of the creamy ground-colour remains visible. Incubation terminates in England about the end of April or the early part of May.

A white kestrel was killed at Newmarket in 1865. Of much greater interest is, however, an old female taken in Hertfordshire in 1874, in which the tail and tail-coverts were of the slaty hue, with black bars, normally characteristic of the male. This shows a tendency to approximate to the type of the more specialised species, such as the peregrine, in which the blue (originally breeding) dress has been acquired by both sexes.

The lesser kestrel (*Finnunculus cenchris*, or *Cerchneis cenchris*), which breeds in southern Europe, western Asia, Persia, and China, and visits Africa and India in winter, may be distinguished from the typical species by its whitish or yellowish horny, in place of black, claws; its total length being about $12\frac{1}{2}$ inches. Although doubtless other specimens have occurred, only ten examples of this species appear to have been definitely identified in the British Isles up to the year 1900. Of these England (inclusive of the Scilly Isles) claims eight, while Scotland and Ireland have one each.

Honey-Buzzard (*Pernis apivora*). Although, on account of the fact that these hawks are not near relatives of the true buzzards it has been proposed to replace the name honey-buzzard by honey-kite, the attempt is not likely to succeed, and indeed is illegitimate, the former being the proper designation of the species. Honey-buzzards, of which there are several species, present an interesting instance of adaptation to a special mode of life, the membrane in front of the eyes, which is bare in nearly all other members of the order, being, like the sides of the head, forehead, and chin, covered with small scale-like feathers, without the presence of any bristles or bristle-like hairs. Obviously this covering is designed to serve as a protection against the stings of bees and wasps; the birds of this genus feeding principally upon the combs and grubs of those insects.

Honey-buzzards are further characterised by the elongation of the rather feeble beak, which is but slightly hooked at the tip; the long wings, in which the third and fourth quills are nearly equal and exceed all the others in length, although the fifth is not much shorter; the moderately long and slightly rounded tail; the short and stout shank of the leg, which is feathered half-way down the front and covered elsewhere with hexagonal scales; and the long toes and claws, of which the former are protected above by plates of bone, while the middle one of the latter is somewhat expanded on its inner side. Honey-buzzards are restricted to the Old World, exclusive of Australasia.

In point of size the typical and only British representative of the group is a comparatively large bird, the hen measuring as much as 25 inches in length and weighing nearly a couple of pounds, while her partner is not much smaller. In the adult male the head is ashy grey and the remainder of the upper surface dark brown, while the upper portion of the breast is chocolate-brown with darker shaft-streaks to



HONEY-BUZZARD.

(From a specimen in the British Museum.)

the feathers, and the lower part of the same—from the middle backwards—white with heavy chocolate-brown barrings. Females differ by their slight superiority in size; while immature birds may be recognised by the lighter colour of the head, the pale edges to the feathers of the upper-parts, and the large circular chocolate blotches on the otherwise white breast. It is further noticeable that at this stage the colour of the eyes is hazel, although in the adult this changes to pale straw. For some unexplained reason the species shows a marked tendency to the development of a black phase, and brownish-black specimens are far from uncommon at all ages.

The geographical range (both as regards the breeding-area and migration) of the honey-buzzard is very similar to that of the cuckoo; both species wintering in Africa, and crossing the Mediterranean in spring (during the month of May in the case of the present species) to spread themselves over the greater part of Europe, penetrating a considerable distance north of the Arctic Circle. The range of the honey-buzzard to the eastward is, however, by no means limited by the confines of Europe, and it is probable that the species extends in this direction at least as far as Turkestan. In the greater part of Siberia it is, however, replaced by the nearly allied crested honey-buzzard (*Pernis cristata*), which visits India, China, and Japan. Honey-buzzards cross the Mediterranean in large flocks, not unfrequently including hundreds of individuals. The comparative lateness of the arrival of this species, more especially in the far north, is mainly due to the nature of its food.

Of the numerous honey-buzzards which wing their way northwards in spring, only a few stragglers occasionally reach the British Isles at the present day; a considerable percentage of these being seen on the autumn return journey rather than on the outward route. Needless to say, most of these wanderers receive the kind of reception accorded to rare birds in general. In former days the case was, however, very different; and in the eighteenth century honey-buzzards still nested in various parts of Hampshire, Oxfordshire, and other well-wooded districts. Not that the breeding of this species in England was by any means limited to the eighteenth, or even the first half of the following century. On the contrary, nests were recorded from various places in the New Forest in 1871 and the two following years, while young are reported to have been seen there so recently as 1895. The alleged breeding of the species in Somersetshire, chronicled in the first year of the present century as having taken place in 1897 and 1899, is based on an error. Eggs were also taken at no very distant

date at Harkness, Yorkshire, and a couple of young birds near Hereford in 1877. At a considerably earlier date eggs are reported to have been taken in Aberdeenshire, where, as well as in Forfarshire, the species was recorded in 1903. On the other hand, there does not appear to be any evidence that the species has ever bred in Ireland, to the eastern side of which it seems never to have been more than an extremely rare visitor, while to the western counties it is totally unknown. Indeed, the total number of Irish examples recorded up to the year 1900 is only eight, and one of these does not seem to have been identified with absolute certainty. The British Museum possesses eggs of this species from six different clutches of English origin, four of these being from the New Forest. The dates when three of these were taken range between the 14th and the 24th of June. It may be added that the honey-buzzard has been observed wintering on the south-eastern side of the Black Sea.

As might be expected from the nature of their food, both species of honey-buzzard are to a great extent ground-birds. Indeed, their ordinary flight is short, low, and hurried, although from time to time they indulge in soaring flights above the tops of the trees of the forests which form their usual resorts. On the ground they run with considerable speed and activity; and in tearing open the nests of bees and wasps for the sake of their contents employ both beak and talons. The whole comb, inclusive of wax, honey, and grubs, is devoured; and in addition to this the adult bees and wasps, as well as other insects, lizards, worms, slugs, field-mice, and small birds, are stated to be consumed. Moreover, in autumn, when animal food is apt to run short, the honey-buzzard is reported to be by no means opposed to a meal of berries or other small-sized fruits. Like many others of their tribe, these birds are averse to expending more time and trouble on the work of nest-building than is absolutely necessary, and accordingly in most cases make use of the last year's nursery of some other bird, such as a crow, doing, however, a certain amount of repairs to the structure. In Great Britain the eggs are usually laid in June. As a rule these are two in number, but occasionally there is only one, while still more rarely the clutch may be increased to three or even four. Varying in length from a trifle less to somewhat more than a couple of inches, with a breadth of from rather more than $1\frac{1}{2}$ to $1\frac{3}{4}$ inches, the eggs are blotched and clouded, as a rule, with two shades of mahogany-red and deep chestnut on a buffish ground in a manner which renders them some of the most admired treasures of the collector's cabinet: and there can be little doubt that the extreme beauty of its eggs

is one of the causes which have largely conducted to the practical extermination of this bird as a breeding-species in the United Kingdom.

Goshawk
(*Astur palum-
barius*).

With the goshawk, or "goose-hawk," we reach the first representative of the typical hawks, which differ from falcons and the great majority of the members of the order by the shorter and more rounded wings, and from all save the harriers by the length of the leg, in which the shank or lower segment is approximately equal to the one above it.



MOUNTED IN THE ROWLAND WARD STUDIOS

GOSHAWK (FEMALE).

In all the members of the group hitherto mentioned, with the exception of the honey-buzzard, the upper half of the beak is furnished with a distinct "tooth" on each side; but in the present and all the following species this is wanting. Although the length of the shank is a sufficient characteristic of the group, it may be added that this portion of the leg is protected by large shield-like scales both in front and behind; in the wing the fourth quill (or if not this the third or the fifth) is the longest; and that the short, stout, and sharply curved upper half of the beak displays a bold festoon on each side. The sexes differ markedly in size; and the plumage is grey or brown above, and beneath

spotted in young, and transversely barred in adult birds. The group has a wide distribution; all its representatives being denizens of forests or well-timbered districts, and constructing nests of their own in trees.

Roughly speaking, the goshawk may be likened to a large sparrowhawk; but its size is so much superior to that of the latter that there is no possibility of confounding the two species even in a casual glance, the female goshawk measuring as much as 23 inches in length, and her partner about 3 inches less. As regards colour, the two sexes are practically alike, the adults having the upper-parts dark ashy brown,

with a white line above the eye, and five dark bands across the tail, and the under surface white with black barrings and dark shafts to the feathers of the throat and breast, which communicate to those areas a finely streaked appearance. In young birds the brown feathers of the upper-parts are more or less distinctly tipped with whitish, the crown of the head is rufous streaked with dark brown, and the breast longitudinally streaked, instead of transversely barred, with black on a buff-tinged white ground.

In former days the breeding-range of the goshawk included the British Isles ; but its western limit is now marked by Lapland and other parts of Scandinavia, whence it stretches uninterruptedly across northern and Central Asia, inclusive of the higher ranges of the Himalaya, to the eastern side of China and Japan. Northwards the limits of the breeding-area extend to about latitude 60°, while southwards they include Gibraltar. Young birds visit northern Africa, inclusive of Egypt, Syria, and the Caspian districts in winter, but in Europe adult birds seem for the most part content to spend the whole year not far away from their breeding-resorts. Farther east it has been stated to be a more decidedly migratory bird ; but it is noteworthy that there is no winter-migration from Central Asia and the Himalaya to the plains of peninsular India.

Evidence of the former breeding of the goshawk in Great Britain is afforded by an egg in the collection of the British Museum from Balmacara, Ross-shire, which appears to be one of two taken in April 1871. Although this seems to be the only instance where British eggs are forthcoming, there is some evidence to show that a pair of these birds nested in Yorkshire in 1893. There is also more or less definite evidence to prove that the species formerly nested in several Scotch forests, at a time when pine-woods were abundant ; and there is a definite statement as to a pair of goshawks having occupied a deserted raven's nest in Roxburghshire. Further, there are reports as to the former occurrence of the species in Leicestershire and Northamptonshire (*circa* 1752). It must, however, be borne in mind that some of these reports may refer to the peregrine falcon. Old records likewise point to the occurrence of goshawks in Ireland, where they appear to have bred ; but in modern times only three instances of the occurrence of the species in that island are noted, none of which are supported by the evidence of actual specimens. Nowadays most of the goshawks which visit Great Britain are immature birds ; and the reported breeding of the species in Gloucestershire in 1904 appears to be incorrect.

Although goshawks are employed to a considerable extent in

falconry, especially in India, and when loosed fly direct for their quarry, yet they lack the bold dash and high courage of the peregrine falcon ; and it would seem not improbable that the name "goose-hawk" may refer to this inferiority in the matter of pluck, rather than, as has been suggested, to the capability of the species of striking down such a large bird as a wild goose. Essentially a forest-bird, the goshawk in the Himalaya preys on monal and other pheasants, partridges, pigeons, and various other kinds of birds, as well as the smaller rodents and such other quadrupeds as it can slay ; while in Europe, grouse, ptarmigan, rabbits, hares, and wild ducks may be added to its list of victims. Despite the shortness of its wings, the goshawk has no difficulty in overtaking a hare or a rabbit, whose doublings it follows with unerring skill and unceasing pertinacity ; and as it is a bird very easily tamed, it is a great favourite among the native Indian chiefs in falconry, by whom it is used for taking bustards, ducks, hares, and more rarely partridges. The latter part of April or commencement of May is the breeding-season of the goshawk in most parts of Europe, but in the Himalaya the period extends from March till June. These birds build their own nests ; each pair generally returning year after year to their old nursery, which is annually repaired and added to, until in some cases it becomes a huge structure. The nest is invariably placed in a tree and built of coarse twigs. Four is the most common number of eggs in a clutch, but there are not unfrequently only three, while occasionally the number is increased to five. They are quite unlike those of the falcons, being generally almost white, with a bluish tinge, although occasionally spotted, or even blotched. When in the nest, their natural colour is much obscured by dirt.

Of the American goshawk (*Astur atricapillus*), distinguished by its black head and freckled breast, an example was killed in Tipperary in 1870, and a second in King's County soon afterwards, while there is a report as to a third having been shot in Perthshire. It is, however, by no means certain that these were not birds escaped from captivity or which had been carried across the Atlantic in the rigging of ships.

Sparrow-Hawk Sparrow-hawks, of which there are at least five-
(Accipiter nisus). and-twenty species, with an almost cosmopolitan
distribution, are so similar to goshawks that there
has been some question of separating them generically from the latter. They are, however, readily distinguished by the much greater length and slenderness of the shank of the leg and the toes, the middle one of the latter being especially elongated and projecting far beyond the

other two front ones. On this ground, at any rate as a matter of convenience, their separation as a distinct genus is advisable. Other distinctive characteristics are to be found in the shortness of the beak, and the great development of the fleshy tubercles on the lower surface of the toes.

The sparrow-hawk is a much smaller bird than the goshawk, the female not exceeding $15\frac{1}{2}$ and the male 13 inches in total length. As the fully adult plumage is not assumed till late in life, numerous transitions between this and the immature dress are of frequent occurrence; and some uncertainty still exists with regard to the adult livery of the female. In the fully adult male the upper-parts are dark slaty blue, with a distinctive white patch on the nape of the neck, and rufous cheeks and ear-coverts; while the under surface is white indistinctly barred with rufous red, although in aged birds the breast becomes wholly red. The hen is generally described as being browner on the back than the cock, and only occasionally attaining the full slaty blue of the latter; usually she is more strongly marked with pale brown and rufous bars on a white ground, with a tuft of rufous feathers on the flanks, but according to some ornithologists she may eventually acquire the uniformly rufous breast of her partner. In immature birds the upper-parts are dark brown, each feather showing rusty margins; the throat is white with dark brown streaks; and the feathers of the breast are tipped with chestnut arrow-headed markings, lighter in the centre, and so arranged as to form transverse barrings. Sparrow-hawks frequently breed while still in the immature plumage. Among birds of prey in general, albinos are very rare, but at least four examples of white sparrow-hawks have been recorded, one of these being exhibited in the central hall of the Natural History branch of the British Museum.



MOUNTED IN THE ROWLAND WARD STUDIOS

SPARROW-HAWK (MALE).

As the sparrow-hawk is essentially a denizen of well-wooded districts its geographical distribution is necessarily restricted to the northward by the limitations of the forest-zone, and therefore does not extend much beyond latitude 69° , that is to say, some little distance within the Arctic Circle. Moreover, it is a cold-loving species, and is, therefore, more numerous in the northern than in the southern portions of its breeding-range, although this extends from northern Scandinavia



MOUNTED IN THE ROWLAND WARD STUDIOS

SPARROW-HAWK (FEMALE).

southwards to Spain, inclusive of Gibraltar, and Greece; but it may be that in these southern latitudes the nesting always (as it certainly does at times) takes place only at considerable altitudes. In the opposite direction the breeding-range extends from Scandinavia across northern and Central Asia, inclusive of the Himalaya (which is the home of a large and dark-coloured race), to Korea and Japan. North European birds visit southern Europe in winter, while some, accompanied perhaps by their southern relatives, cross the Mediterranean into Africa; and a similar

southern migration takes place in Asia, where sparrow-hawks spread themselves in winter over India and over China as far south as Canton. With the exception of the northern isles of Scotland, where it is comparatively scarce, the sparrow-hawk is to be met with in wooded districts throughout the British Islands, although, owing to the persecution to which it is subjected at the hands of gamekeepers, in far smaller numbers than formerly.

Not that this persecution is by any means unjustifiable, for in the spring this hawk is extremely destructive to young pheasants and partridges, as it is to small birds in general. Indeed, it is capable of

killing birds as large as pigeons. All the smaller birds recognise the sparrow-hawk as a deadly and crafty foe; and, when in sufficient force, they seize every opportunity of showing their resentment and hatred by mobbing and hustling it on such occasions as it appears in the open. Its swiftness of flight and its courage give little chance for the victim to escape, especially when, as is its habit, it dashes out unexpectedly upon some solitary bird. As a rule, sparrow-hawks in this country build their own nests, which are placed in trees, such as oaks, alders, and pines; but in the Himalaya they are stated to frequently take possession of the deserted nests of crows or other medium-sized birds, as is occasionally their practice in Great Britain. Although the breeding-season in the Himalaya extends through May and June, in England it is mainly restricted to the former month; the eggs being usually four in number, although occasionally there may be six or even seven in a clutch. Measuring rather less than $1\frac{3}{4}$ inches by rather more than $1\frac{1}{4}$ inches, the eggs are bluish white, heavily spotted and blotched, especially at the blunt end, with reddish brown. Sparrow-hawks are readily trained for hawking, and in India the females, although generally employed on smaller game, are trained to take such birds as partridges and sand-grouse, the latter of which afford splendid sport.

Buzzard The European buzzard (whose full title is *Buteo*
(*Buteo desertorum*). *desertorum vulgaris*, although some ornithologists prefer the designation *Buteo buteo*) may best be regarded as a local race of a widely distributed species which is the typical representative of a genus ranging over a great part of the world. Despite their sluggish disposition, heavy, laboured flight, and lack of boldness (from which latter character probably arises the name "buzzard," as applied to a cowardly person), these birds are nearly related to the eagles, from which they chiefly differ, apart from inferiority of size, by their much less powerful beaks and claws. They resemble eagles, for instance, in general build and appearance, especially in the relative shortness of the shank of the leg, which is much inferior in length to that of the falcons and hawks, and in the presence of a kind of pent-house overhanging the eye. The beak shows only a slight festoon on the edges of the upper half, and the nostrils are long and oval, without the central knob characteristic of the falcons. In the long wings the third, fourth, and fifth quills are nearly equal in length, although the fourth is in general slightly the longest; and the inner webs of the first four are deeply notched. The moderately long tail is rounded at

the end. More important characters are afforded by the shank of the leg being feathered to a larger or smaller degree in front, and covered behind by transverse shield-like plates instead of small hexagonal scales. An extremely interesting feature in the buzzards (although one not available for the purpose of identification) is the assumption of the fully adult plumage when the nestlings first become fledged, although, as in other members of the family, there may be some slight modification in old age by the gradual disappearance of the barrings on the

tail and breast. In respect of having entirely lost their immature non-breeding plumage, the buzzards are indeed the most specialised of the Falconidæ.

In colouring the ordinary buzzard is so variable that scarcely any two examples are alike; and although paler specimens have been supposed to be immature, there is no decisive evidence that such is the case. No distinction in the matter of colouring exists between the two sexes; the hen being recognisable by her slightly superior size, her total length reaching 23 inches.

In the more normal type the upper-parts are dark umber-brown, with



MOUNTED IN THE ROWLAND WARD STUDIOS

BUZZARD.

white streaks on the cheeks, a brown-flecked white patch on the nape of the neck, white blotches on the wing-coverts, and darker bars on the tail; the throat is white, the centre of the upper part of the breast white streaked with brown, a similarly coloured band running across the middle of the breast and down the middle line of the abdomen, while the flanks are dark brown. There is, however, a more striking colour-phase in which the upper-parts are umber-brown and the tail banded with numerous dark brown bars, between which are chestnut splashes, while the feathers of the T-shaped mark on the breast and abdomen are white with dark brown barrings. In a third

phase the colour is almost entirely yellowish white, with a few brown feathers interspersed ; the rarity of this type indicating almost certainly that it is not, as has been supposed, the immature dress. In all cases the eyes are hazel and the bare parts of the hind-limbs bright yellow.

Such are the characters of the European buzzard, which if regarded as a distinct species should be called, on the system of nomenclature here adopted, *Buteo vulgaris*. The typical south European and north African *B. desertorum* is usually smaller and more rufous ; while the Indian *B. plumipes* is generally darker with fuller feathering of the shank of the leg. Since, however, there appear to be indications of gradation between them, it seems preferable to regard all these forms as races of a single variable species. On this view the African bird should be designated *Buteo desertorum typicus*, the European *B. desertorum vulgaris*, and the Indian *B. desertorum plumipes*.

In this extended specific sense the buzzard ranges over the greater part of Europe, Asia, and Africa, extending in an east and west direction from Scandinavia to Japan. In Asia the breeding-range includes the Himalaya, but not India, to which the species is only a winter-visitor ; while in Scandinavia it extends about as far north as latitude 60°. The north European birds are to a great extent migratory, journeying southwards and eastwards in autumn, and passing the island of Heligoland in great flocks. Whether they enter the area of the typical *B. desertorum* does not appear, however, to be definitely ascertained.

Although formerly exceedingly common in the wilder wooded districts of Great Britain and Ireland, the buzzard can scarcely hold its own as a breeding-bird in face of the incessant persecution to which it has long been subjected — a persecution now rendered more severe than ever by the eagerness of collectors to obtain British skins and eggs. Happily there are still localities in the north of England, such as parts of Yorkshire and the Lake District, as well as in North Wales and Scotland, where buzzards breed regularly ; and there is even a record of a brood having been reared in the New Forest so recently as 1895. Throughout the greater part of the first half of the nineteenth century buzzards also bred regularly in many parts of Ireland ; but they now occur as casual visitors during the autumn, winter, and spring months, and are of extreme rarity in Connaught and Kerry.

Although occasionally to be seen soaring high in the air in eagle-fashion, buzzards pass much of their time on or near the ground, where they prey on the small rodents, frogs, slow-worms, lizards, and earth-worms which form their chief food. They take, it is true, a few small

birds, but these can in most cases well be spared; and in place of being ruthlessly shot down by gamekeepers, the buzzard ought to be zealously protected on account of its manifest benefit to the farmer. The open parts of woodland districts are the favourite haunts of the present species, which breeds generally in trees (although occasionally among rocks), constructing a large flat nest of twigs, which when completed is lined with fresh green leaves, renewed from time to time as they fade and shrivel. Usually three in a clutch, although occasionally either two or four, the eggs of the buzzard are almost as variable in colour and markings as are the birds by which they are laid; with a whitish or pale blue ground-colour, the eggs may be almost wholly unspotted, flecked with pale reddish markings of varying shape, or heavily clouded and blotched with russet and reddish brown. It would be very interesting to know whether the almost uniformly coloured eggs are laid by the pale-coloured birds.

Of the typical African *Buteo desertorum* an undoubted specimen was killed in Wiltshire in 1864, while two other examples are reported to have been taken in Yorkshire. Single specimens of each of two North American species of buzzard, namely, *B. borealis* and *B. lineatus*, are also reported to have been taken in this country, but the records are open to great doubt. The occurrence of the first-named is credited to Nottinghamshire, 1860, and that of the second to Inverness-shire, in 1863.

**Rough-legged
Buzzard
(Archibuteo
lagopus).**

Whether the comparatively unimportant fact that the four species of rough-legged buzzards differ from the typical buzzards by having the whole front of the legs covered with feathers is sufficient to justify the reference of the former to a genus by themselves may be doubtful. Since, however, this arrangement is generally adopted, and possesses a certain amount of convenience, it may be followed on the present occasion.

The European rough-legged buzzard is a larger bird than its partly bare-legged cousin, the length of the female reaching to as much as 26 inches. As to weight, there appears to be a dearth of information, although it is known that the female of the true buzzard will weigh as much as $2\frac{1}{2}$ lbs., and the male about $\frac{1}{2}$ lb. less.

In colour the rough-legged buzzard exhibits nearly as much variation as its cousin; some individuals being much lighter than others, in addition to displaying differences in marking. In what may be regarded as the typical phase the head is white, more or less streaked with yellowish brown, except the feathers of the cheeks below

the level of the gape, which are dark brown ; the remainder of the upper-parts is dark brown blotched with white, with the tail white at the base and traversed by two or more dark bars ; a white T-shaped mark occupies the middle of the breast and abdomen, leaving the remainder of the under surface dark brown, with the exception of the flanks, which are white with brown barrings. Some individuals show white scapulars and back with brown bars ; as regards the feathering of the leg, this may be either white or red, but always heavily barred ; the bare skin at the base of the beak and the toes is yellow, and the



MOUNTED IN THE ROWLAND WARD STUDIOS

ROUGH-LEGGED BUZZARD.

eye a paler shade of the same colour, tending to white. It is generally stated that young birds are browner, with less white on the tail, and the under-parts streaked rather than barred ; but in view of the disappearance of the immature plumage this requires confirmation, and the alleged immature dress of the present species may perhaps prove to be only a colour-phase of the adult.

If its breeding-area be regarded as its true home, the rough-legged buzzard is an essentially northern bird, ranging from Scandinavia in the west, at least as far as the valley of the Lena, in Siberia, to the east, and in Russia not nesting southward of about latitude 56° . In winter these northern birds migrate to southern Europe, north Africa, and south-western Asia ; a different species being met with in India,

while a third inhabits North America. Whatever may have been the case in the past, the rough-legged buzzard is now only an autumn-visitor to Great Britain, in most seasons more abundant in Scotland and on the east coast of England than to the south and west. In some years enormous flights of these buzzards visit our islands, one such having been recorded in 1891, while a second occurred in 1903, when large flocks were observed in Yorkshire, Nottinghamshire, and Derbyshire. Nineteen Irish specimens were recorded up to 1908.

No British-laid eggs of this species are included in the collection of the British Museum, but there are nevertheless reports as to the former breeding of the rough-legged buzzard in Yorkshire, Northumberland, and Banffshire. None of these instances can, however, be regarded as definitely authenticated, and the great bulk of the eggs (which are practically indistinguishable from those of the ordinary buzzard) in collections come from Lapland. Three or four are the usual number in a clutch, although there may be as few as two; these being laid in huge nests of sticks, sparsely lined with pine-needles and black hair-like lichen, which are built in trees.

Field-naturalists seem to have had few opportunities of observing the habits of the rough-legged buzzard, which is stated, however, to frequent more open country than its smooth-legged cousin, and to approximate more closely in its general mode of life to an eagle. Rabbits, ducks and other water-birds, and in some districts lizards, are stated to form its chief food. In flight the species is said to be slow and heavy; and, except when migrating, the aerial journeys are usually short. The most characteristic feature is perhaps the cry, which is said to be almost indistinguishable from the mew of a cat.

Hen-Harrier The almost cosmopolitan group of hawks collectively
(*Circus cyaneus*). known (probably on account of their method of seeking their prey) as "harriers" is best recognised by the great length of the shank of the leg, which is more than double that of the beak from gape to tip, and practically equivalent to that of the second segment of the leg. Another distinctive feature, although one much more pronounced in some species than in others, is the presence of a ruff of small close-set feathers across the front of the throat, and extending thence up the sides of the face behind the ear-coverts. As these two characters are alone sufficient to distinguish these birds, it will be unnecessary to add more, except the statement that the wings are long and pointed, the long tail squared or rounded, and the shank of the leg feathered only near the upper end, and

elsewhere covered with transverse shield-like scales in front, and smaller many-sided scales behind. This polygonal scaling of the hind surface of the shank at once serves to distinguish a harrier from a true hawk, such as a sparrow-hawk or goshawk, in which the shank is also long, but covered behind with transverse shield-like scales.

The two sexes differ markedly in colour when adult, the male of the hen-harrier being for this reason locally styled the blue, or dove, hawk, while his mate is known as the ring-tail. Their general appearance and mode of flight render these birds easy of recognition in the field; and they are for the most part migratory to a greater or



MOUNTED IN THE ROWLAND WARD STUDIOS

HEN-HARRIER (IMMATURE MALE).

less extent, although some individuals of a species may be permanent residents in particular districts. Unlike the majority of the hawk tribe, they nest on the ground, or in reed-brakes; their bluish-white eggs being in general uniformly coloured, although in some cases sparsely speckled with rusty brown.

In the male hen-harrier the general colour of the upper surface is uniform slaty grey, while the throat and breast are bluish grey, the remainder of the lower surface white, and the bare membrane at the base of the beak, and the legs and eyes yellow.¹ On the other

¹ Owing to the discrepancies among authors, no attempt is here made to give the dimensions of the species. In Sharpe's *Handbook to the Birds of Great Britain*, vol. ii. p. 126, the length of the male is given as 22 and that of the female as 23 inches; in Blandford's *Fauna of British India—Birds*, vol. iii. p. 385, the corresponding dimensions are given as 18 and 21, while in Harting's *Handbook of British Birds*, p. 23, the male is stated to be larger than the female.

hand, in the somewhat larger female the upper-parts are dark greyish brown, with white streaks on the nape of the neck and a white border to the well-developed face-ruff; the lower part of the back is, however, white with rusty markings, while the brown tail carries five dark transverse bars and has light tips to the feathers; a paler tint characterises the lower surface, which is streaked and blotched with reddish; the legs and cere are yellow, but the eyes are believed to be brown, as they certainly are in young birds of both sexes. The latter



MOUNTED IN THE ROWLAND WARD STUDIOS

HEN-HARRIER (ADULT FEMALE).

are generally similar to the adult females, but all the markings on the breast are in the form of shaft-streaks to the feathers; cocks are distinguishable by their smaller size, while in the hens the tail-bars are rufous.

Having a breeding-range which embraces the greater part of Europe, that is to say, from Lapland in the north to central France and the Alps and Carpathians in the south, as well as the whole of Central and northern Asia, inclusive of the Himalaya and Japan, the hen-harrier has disappeared as a nesting-species from most parts of the British Islands with startling rapidity, almost before our very eyes.

In winter the species migrates to north-eastern Africa, south-western Asia and China, a few stragglers visiting the plains of northern India. As regards the British Isles, the enclosure of waste lands, which form its chief haunts, and in later years incessant persecution on the part of gamekeepers and collectors, appear to have been the chief factors which have led to its extermination in many districts and its rarity in others. So late as the year 1824 as many as a dozen harriers are recorded as nesting at once on a common of some sixty acres in Lincolnshire; and up to about 1850 the Yorkshire moors were favourite breeding-haunts of the species, the last-reported nest having been taken in that year. In Norfolk a nest was, however, recorded in 1861, and a second from

Huntingdonshire about the same date, while a third was taken in Shropshire so recently as 1890. On the other hand, the hen-harrier resumed breeding in Cornwall in 1903, and has continued to do so every year since. The only English eggs in the British Museum are a pair from Dorsetshire and one from Northumberland.

There are, however, in the Museum collection a number of eggs from the Orkneys, as well as several from the mainland of Scotland, and one Welsh specimen. From a large part of the west of Scotland, where it was once common, the species has disappeared as a breeding-bird, the last nest in the Argyll district having been taken in 1877. In the north of Scotland, as well as in the Orkneys and some of the other isles, it apparently, however, still breeds locally. In Ireland it is now to be met with in many of the mountainous districts as a resident, although in ever-decreasing numbers; and there are several localities from which it has disappeared. It may be added that, except probably in the north, the species was a permanent resident in the British Isles (as it is locally to this day), although it leaves the greater part of northern and central Europe to winter in the south. The resident British birds are reinforced on the eastern coasts by a few arrivals in autumn from the Continent.

Harriers take their name from the manner in which they fly leisurely and regularly over their hunting-grounds on the moorlands and fens in search of their prey, which comprises field-mice, lizards, frogs, large insects, and in the breeding-season the eggs and young of other birds, as well as occasionally a brooding female of the smaller species of the latter. From the charge of doing harm to the chicks of game-birds they cannot be defended. In beating for game harriers just skim the tops of the moorland gorse and heather, and they generally rest on the ground rather than on trees, from which habit they are liable to be occasionally seized by foxes. The nest may be placed either in heather or gorse, or in corn-lands; a dry, rather than a marshy situation being generally selected. A large platform of grass, about 5 inches in height, mingled with a few twigs, and having a hollow in the centre, constitutes the nest; and in this are laid late in May or June from four to six bluish-white eggs, occasionally speckled with rusty. The length of the eggs varies between $1\frac{3}{4}$ and 2 inches. Although the hen sits very closely, and will not budge at the approach of an intruder, she is "given away" by the cock, who invariably raises a loud alarm-cry.

**Montagu's
Harrier (*Circus
cineraceus*).**

A slightly smaller bird than the last, Montagu's harrier (sometimes described under the name of *Circus pygargus*) may be recognised at all ages by the slight notching of the outer web of the fifth primary wing-quill, which in the hen-harrier is entire. The male, which is much the same bluish grey above as the hen-harrier, may be further distinguished by the black bar across the secondary quills and the white feathers of the middle portion of the legs. The female is dark brown above, with the breast more distinctly striped than in the



MONTAGU'S HARRIER.

(From a specimen in the British Museum.)

corresponding sex of the last species. Young birds are generally similar to the adult females, but the colour of their under-parts approaches chestnut. Abnormally dark or even black phases of the species are by no means uncommon. How to distinguish a Montagu's from a hen harrier in the field must be left for others to determine.

That it is difficult may be inferred from the fact that the present bird was not recognised as a distinct species (at least in this country) till the year 1802, when it was described as such by the celebrated ornithologist from whom it takes its popular designation. It breeds, however, occasionally in the southern and eastern counties of England, the British Museum possessing eggs from the New Forest, Dorsetshire,

and the Isle of Wight, while Norfolk and Cambridge are other counties where nests have been taken. A pair of these birds (at first supposed to be marsh-harriers) nested in Surrey in 1907. Northumberland, Yorkshire, Wales, and the Solway district in Scotland are also recorded as localities where Montagu's harrier has occasionally nested; but to the north of England generally, and more especially Scotland, the species is only a casual visitor. From Ireland only eight examples were recorded up to the year 1900, all of which were obtained in or near County Wicklow.

Unlike the hen-harrier, the present species is only a summer-visitor to our country, a fact correlated, no doubt, with the circumstance that on the Continent its breeding-range does not extend so far north as that of the former. Indeed, Montagu's harrier is evidently a bird which enjoys warmth, as is demonstrated by the fact that two out of the four sets of eggs in the national collection were taken respectively in the latter part of June and the beginning of July. On the other hand, three eggs from the Volga are stated to have been taken in April. The greater part of Europe, Asia, and Africa come, at one time or other, within the range of this migratory species, St. Petersburg approximately making its northern, and Cape Colony its southern limits. In such a central district as Spain it is a permanent resident. Eastward it is known to extend to western Siberia, whence it migrates in winter to China, India, and Ceylon.

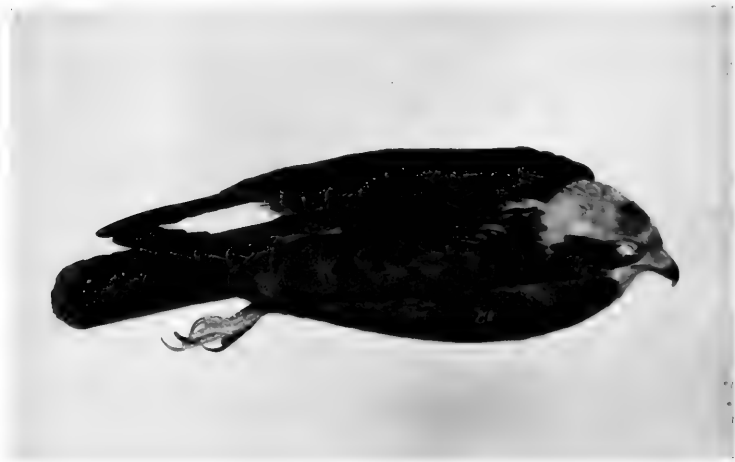
Owing to its relatively larger wings, Montagu's harrier is stated to have a lighter and more owl-like flight than its relatives; while its only other peculiarity appears to be that, in the Mediterranean countries at any rate, it habitually nests in colonies in marshy situations.

Marsh-Harrier
(*Circus*
æruginosus).

The marsh-harrier, the third and last representative of the group with which we have to deal, agrees with the hen-harrier in regard to the notching of the primary quills of the wing (as described under the heading of Montagu's harrier), but is a bird of considerably larger dimensions. Apart from this, the adult male may be recognised by a uniformly grey tail contrasting sharply with the chocolate body; the female by her buff head, streaked with brown, and brown tail; and the immature bird by the uniform colour of the inner webs of all the primary quills. To these leading characteristics it may be added that in the cock the head and throat are creamy white streaked with umber; the upper-parts chocolate-brown, except for the wings (which have buffish-white lesser coverts, bluish-grey greater coverts and outer

secondaries, chocolate-red inner secondaries, and dusky primaries); the tail, as already stated, grey; under-parts buff, striped with brown on the breast, and with chestnut on the abdomen; and the legs feathered far down. In the hen the colour is brown above and chocolate-brown below, the head being, however, buff streaked with brown, and the lesser wing-coverts at the bend of the wing creamy white. Young birds, in addition to the features already mentioned, are characterised by the uniformly chocolate breast, except for a buff patch in the centre, and the absence of grey on the wing-coverts and secondary quills.

Such is the general type of colouring; it should, however, be



MARSH-HARRIER (MALE).

mentioned that, in addition to the changes dependent upon age, the marsh-harrier, like the buzzard, is liable to a considerable amount of individual variation in the matter of the colour of the plumage. Possibly this may be accounted for by the species being in a state of "unstable equilibrium" in this respect; for there can be little doubt that in this harrier we have an instance of the first stage towards the development of a completely grey plumage in both sexes, that colour occurring only on the tail and wings of the adult males. Nothing would be more likely, on the assumption that grey is an advantage, than that there should be individual variation in regard to its degree of development.

The distribution of the marsh-harrier is practically the same as that of the preceding species, extending as far east as Turkestan and

western Siberia, and including in winter India (where this bird occasionally stays to breed) and the greater part of Africa. As implied by its ordinary name, the marsh-harrier—or moor-buzzard, as it used to be called by the natives of the fens—is a denizen of marshy and swampy low-lying tracts, and the draining of Whittlesea Mere, followed by that of a large extent of the fens generally, was its death-knell as a breeding species in England, although there are still areas in Norfolk where it might to all appearance find suitable nesting-ground. At the present day this handsome harrier cannot be regarded in the light of other than a casual visitor to Great Britain, where it most commonly makes its appearance in autumn. The draining of Whittlesea Mere took place in 1851, and from that date onwards the marsh-harrier appears to have abandoned its old nesting-resorts in the fens of Cambridge and Huntingdon. In Norfolk, however, where it was quite common during the first quarter of last century, it continued to nest in certain localities so late as 1866. A nest was also recorded from North Wales in 1877. In Scotland it is extremely doubtful if the species ever bred. On the other hand, in the bogs of part of Galway and the central districts of Ireland the marsh-harrier, although in greatly diminished numbers, is still a resident, and probably a breeding, species. In August, unfortunately, it displays a tendency to forsake its nesting-haunts for lakes and rivers where water-fowl are abundant, and it is there it most frequently falls to the shot of the irresponsible gunner. The British Museum possesses eggs from Hickling Broad, Norfolk, Whittlesea Mere, and the neighbourhood of Oxford—the last taken in July.

Although usually frequenting marshy tracts or the borders of large pieces of water, the marsh-harrier may at times be seen beating over open grass plains; and while its habits are in general very similar to those of its smaller relatives, it occasionally essays soaring flights in buzzard-fashion. Frogs, fishes, insects, small birds, and eggs constitute its usual diet, although when opportunity occurs it will make a meal off a wounded partridge, even if too large to be carried away. The nest is made of grass or straw in reed-brakes, and the four or five eggs are of the usual harrier-type, with a length of 2 and a breadth of $1\frac{1}{2}$ inches.

Kite

(*Milvus regalis*).

After an interregnum of ten years the kite in the summer of 1905, owing to special protection, once more successfully reared its young in its last British stronghold among the mountains of South Wales, where two broods of

a pair each left their respective nests. Previous to this interesting event the last record of the breeding of the species in Great Britain appears to have been near Shrewsbury in 1895; and for several years previous to this kites nested locally in various Welsh localities. If we accept the Shrewsbury case, which may have been within the Principality, the last-recorded English kite's nest was in Lincolnshire in 1870. In Worcestershire the species bred so late as 1850, and in



KITE.

Huntingdonshire till 1844; while in 1825 it still nested commonly in many parts of England. Across the border kites are recorded to have bred in Perthshire so recently as 1871, but the statement that a pair of young kites was taken in Glen Lyon, Argyllshire, in 1876¹ is incorrect, the real date being ten years earlier. To Ireland the kite never appears to have been more than a casual visitor, and no Irish specimen is in existence. This is very strange, considering how numerous was the species in the south of England in the fifteenth century. The recent breeding of the species in South Wales has been already mentioned; and a number

were reported from Gloucestershire in the same year, where they were formerly very common. It is stated, indeed, that some fifty years ago no less than seventeen were killed in that county at a single shot, while feasting on the carcass of a sheep. With the above exceptions, the kite throughout Great Britain is apparently only a rare straggler at the present day, its practical extermination being largely due to relentless persecution on the part of the gamekeeper. The British Museum possesses seven kites' eggs from Sutherlandshire, two

¹ Harting, *Handbook of British Birds*, p. 17.

from Caithness, one from Lincolnshire, and one from an unknown British locality.

Kites, which range over the greater part of the Old World, inclusive of Australia, are medium-sized birds of prey, easily recognised by the long and deeply forked tail; another distinctive character being the presence of a flap of membrane over each nostril, by means of which the aperture is reduced to a narrow slit.

The true or red kite, also known, from its gliding flight, as the glead, is the typical representative of the genus *Milvus*; it will be found described in some ornithological works under the title of *Milvus iclinus*, and in others as *Milvus milvus*. In the adult male the head is white with dark brown streaks; the feathers of the back are dark brown with paler margins, those of the wing-coverts rusty red with dark brown centres, but towards the hind margins of the wings the coverts become tinged at the tips with dirty white, while those overlying the quills are dark brown with lighter edges; the breast is rusty, streaked with dark brown. The female, which is slightly larger than the male, measuring about a couple of feet in length, is distinguishable by the somewhat duller colouring and the rather less deep forking of the tail. Young birds are paler and more mottled than their parents.

In its palmy days the kite was a permanent resident in the south of England, as it still is in Spain; but from its more northern breeding-haunts, which extend in Scandinavia to about latitude 61° , it migrates southwards in winter to visit northern Africa and the Canaries, where, however, it also breeds, as it does in the Cape Verde Islands and Palestine. Eastwards its range is very limited; not extending in Russia apparently farther than the valley of the Dnieper, or thereabouts.

In the old days the kite was a favourite quarry in hawking; and its gliding flight and forked tail render it at all times unmistakable when in the air. Kites differ markedly from hawks and falcons by feeding largely on garbage, and in all cases by taking such living prey as they may consume on the ground. In cities where they abound they may almost be regarded as half-domesticated birds, and their boldness is surprising, this being especially the case with the allied Indian species. A "mewing" cry, uttered chiefly in the breeding-season by the British species, is characteristic of the group. Usually placed in a tree, but sometimes on a rock, a kite's nest is notable on account of the scraps of cloth and other "odds and ends" with which it is decorated. The eggs, which are usually two or three in number, and measure about $2\frac{1}{4}$ inches in length, vary from pale greenish white

or whitish to a ground-colour of this nature more or less fully speckled, spotted, or blotched with rusty brown, chestnut, or even umber.

Of the black kite (*Milvus migrans*), which inhabits a large part of Europe, exclusive of Scandinavia, an example is recorded to have been taken at Alnwick, Northumberland, in the spring of 1866, and a second is reported from Aberdeen in 1901. In the case of such a rare straggler no description is necessary.

The same may be said with regard to the black-winged kite (*Elanus caeruleus*), the typical representative of a genus of small-sized species. It is an African species, occurring locally in India, northern Africa, and the south of Europe; and a single example is stated to have been killed in Meath about the year 1842.

Of a third foreign representative of the kite-group, namely, the handsome American swallow-tailed kite (*Elanoides* [or *Nauclerus*] *furcatus*), easily recognised by its pied plumage and the great length of its deeply forked tail, the reported British examples comprise one from Argyllshire in 1772, a second from Yorkshire in 1805, a third from Surrey in 1833, a fourth from Cumberland in 1853, and a fifth said to have been shot on the Mersey in 1843.

**White-tailed
Eagle (*Haliaeetus
albicilla*).**

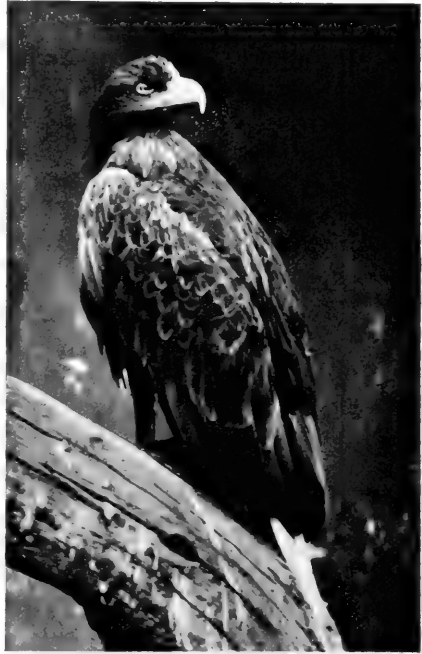
The white-tailed eagle, or sea-eagle, together with the true eagles, is sufficiently distinguished from all the preceding birds-of-prey by its greatly superior size; and it is therefore unnecessary in the present work to refer to the structural peculiarities of the group as a whole. In the case of the present species it will accordingly suffice to state that it is distinguished from the true eagles by the lower portion of the legs being bare of feathers and covered in front from the middle third with plate-like scales, while the toes are protected throughout their length by large transverse plates. Sea-eagles are found almost everywhere in suitable localities, with the exception of South America; the present species being specially characterised by the white wedge-shaped tail of the adult.

In length a full-grown female white-tailed eagle varies from about 34 to as much as 38 inches, and in weight from 10 to about 13 lbs., while her partner is but little smaller. When in the fully adult plumage, which is not assumed till the sixth year, the two sexes are alike in colour, having the head and neck nearly white with brown streaks, the tail wholly white, and the remainder of the plumage brown, but paler on the throat and breast, where the feathers show dark shaft-streaks; while the eyes are pale yellow, and the beak, cere, and

legs chrome-yellow. Young birds are sharply distinguished by the brown tail, as well as by the darker tone of the plumage, which is mottled on the back and wings with tawny; the black beak, and the brown cere and eyes, the legs being yellow, as in adults.

The geographical range of this splendid bird extends from Greenland in the west right across Europe and northern Asia to Kamchatka, and in the opposite direction from northern Scandinavia to Greece and Egypt; all these countries, as well as Japan, being included in the breeding-area. Nevertheless, the species is to a certain extent migratory, making its appearance in north-western India, and perhaps also in southern China, only during the cold season.

Eggs in the collection of the British Museum from Donegal, Glencoe, and the Shetlands and Orkneys indicate that the white-tailed eagle at one time bred in the localities named, while other evidence proves it to have nested in Westmoreland, the Isle of Man, Lundy Island, and possibly some other places in England. To-day its sole remaining breeding-localities appear to be Shetland, a few places in the north and west of Scotland, and one or two localities in Ireland. From several of its old Scottish breeding-places, such as the islands of Rum (where no less than eight were killed in 1866)



WHITE-TAILED EAGLE.

and Mull, it seems to have disappeared as a breeding-bird in the 'seventies; and in Ireland it is now more rare than the golden eagle. To Great Britain elsewhere than the localities mentioned above the white-tailed eagle is chiefly a more or less occasional autumn and winter visitor, although a considerable number of immature birds make their appearance on the south and east coasts of England, where they are almost invariably regarded as golden eagles.

Although, perhaps, more frequently met with on the coast than elsewhere, this bird makes itself equally at home in the neighbourhood

of freshwater where good fishing is to be obtained, and in India an allied species is commonly to be seen hundreds of miles inland. When alive, it may be recognised unseen by its loud scream. Fish forms its main article of food, but snakes, frogs, and water-birds are also killed and eaten. The nest, or "eyrie," is a huge structure of sticks lined with a little heather and grass, and occupied and added to year after year: it may be built either on a rocky islet in a lake, a cliff, in a tree, or even on the ground. The eggs, which in the British Isles are usually laid in April, are two in number, and when unsoiled are white or whity-brown; compared with those of the golden eagle they are rounder, coarser-grained, and smaller, their length ranging three-tenths on either side of three inches.

Eagle (*Aquila chrysaëtus*).

The eagle *par excellence*, although mainly a brown bird, is distinguished from its kindred by the prefix "golden" apparently on account of the tawny hue of the back of the neck — not a very happy designation, it is true, but never yet challenged. A rather smaller bird than its white-tailed cousin (the length of the female never apparently exceeding a yard), it is distinguishable from that species at all ages by the legs being fully feathered to the base of the toes, which are covered with small mosaic-like scales except at the base of the claws, where there are three large transverse plates on the upper surface of each. In both sexes the general colour of the plumage is dark brown with a purplish gloss, becoming tawny on the nape of the neck, and mottled on the tail with dark grey; the beak being horn-colour, the eyes dark brown, and the bare membrane at the base of the beak, together with the legs and feet, chrome-yellow.

Mainly a dweller in mountainous regions, the eagle, with the remarkable exception of being unknown in Greenland, is a circumpolar species, ranging in the Old World as far south as the mountains of northern Africa, Asia Minor, the Himalaya, and Japan, and as far north as Lapland. In all these widely sundered areas it breeds, as it once did over much of the British Isles. Some two centuries ago, for instance, eagles' nests formed one of the glories of the mountains of Wales and of the Peak of Derbyshire, while for a century later they were to be met with in several localities in the Lake District, as well as in the south of Scotland. Nowadays, however, the golden eagle has ceased to breed south of the Clyde and the Forth, as it also has in Orkney; but in many parts of the north of Scotland—thanks to special protection—it still holds its own as a breeding-species, as

it also does to a certain extent in the west of Ireland, where, however, fears are entertained of its impending extermination. In the thirteenth century eagles were described as being as common in Ireland as were kites in other countries; and even up to the middle of the nineteenth century they still bred in considerable numbers among the mountains of Connaught, Munster, and Ulster; but guns, poison, and the premium offered for skins and eggs have done their fell work only too effectually. In England the species is represented merely by the appearance of an occasional straggler during the autumn.



MOUNTED IN THE ROWLAND WARD STUDIOS

EAGLE..

So much has been written with regard to the habits of the eagle that a very few lines will suffice on the present occasion. Though by no means the largest member of the group—a full-grown Irish specimen not weighing more than from 11 to 12½ lbs.—the golden eagle is one of the boldest and most enterprising of all the larger birds-of-prey; killing and devouring such creatures as grouse, ptarmigan, mountain-hares, lambs, kids, and fawns. The males engage in fierce contests among themselves; and a fight of this nature once led to the capture of the combatants, whose claws had become so interlocked that separation was impossible by their own unaided efforts. Golden eagles are easily tamed, and in Central Asia are employed to capture gazelles, which they effect by alighting on the necks of the unfortunate animals and buffeting them about the head

until they become completely bewildered. Although in the British Isles eagles nearly always place their "cyries" on well-nigh inaccessible cliffs, and but rarely resort to trees for breeding, in India trees are as commonly selected as rocks to serve as nesting-sites. The nest itself is a huge structure of sticks, lined with grass, bracken, moss, or other material, which is employed by the same pair of birds year after year and undergoes an annual renovation. When on a cliff, there is generally a large platform or shelf of rock near by which serves the purpose of a larder. It is generally stated that the two, or sometimes three, eggs are hatched in Scotland about the end of April, but two clutches in the collection of the British Museum were respectively taken so late as May 13 and 14. Although occasionally pure white, the eggs, which measure just under 3 inches in length by $2\frac{1}{4}$ in width, are more or less thickly blotched with rusty brown.

A golden eagle that died in Vienna in 1719 is stated to have passed one hundred and four years in captivity.

The large spotted eagle (*Aquila maculata*, also known as *Aquila naevia*) can scarcely be regarded as worthy a definite place in the list of British birds, since only half-a-score of examples appear to have been recorded within our limits. The species, as now restricted, is a native of central and southern Europe, and is of smaller size than the golden eagle, the female measuring about 23 inches in length, and the male 3 inches less. When adult, the colour is dark chocolate-brown, approaching black, but the wing-coverts and nape of the neck are lighter, inclining to buff. In immature birds the general colour is purplish brown, with triangular buff spots on the wing-coverts and lower part of the back. Seven English examples are recorded, viz., one from Lundy Island in 1858, two from Cornwall in 1860 and 1861, one in Hampshire in 1861, two in Essex in 1891, and one in Sussex in the same year. Two specimens taken from Cork in 1845 appear to constitute the Irish list, as two alleged earlier instances are not admitted as valid in the latest work on the birds of Ireland.

Still briefer reference will suffice for such stragglers of the vulture group (Vulturidæ) as have been recorded from the British Islands. The first of these is a specimen of the griffon-vulture (*Gyps fulvus*) taken in Cork Harbour in 1843. The other three belong to the Egyptian scavenger-vulture (*Neophron percnopterus*), two of these having occurred in Somersetshire in 1825, and the third in Essex in 1868.

Osprey (*Pandion
haliaëtus*).

The last British representative of the diurnal birds-of-prey is the osprey, now generally regarded as representing a family (*Pandionidæ*) by itself. From all other members of the order this species differs in that the outer toe can be turned backwards, so as to act in conjunction with the hind one in owl-fashion; and, in correlation with this peculiarity, the bones of the leg likewise approximate to the corresponding



OSPREY.

portions of the skeleton of the owls. Another resemblance is shown by the absence of an after-shaft to the feathers, which is present in all other Old World Accipitres. These peculiarities in structure have led to the opinion that the osprey forms a connecting link between the falcon group and the owls; but it seems possible that the first named, at any rate, is merely an adaptive, although deep-seated, modification for a particular mode of capturing prey. As the reversible outer toe is amply sufficient to distinguish the osprey, it will be unnecessary to allude to any of its other structural features except that the under

surfaces of the toes are covered with sharp conical tubercles for the purpose of aiding in the retention of the slippery prey.

The usual discrepancy as to dimensions is noticeable when different ornithological works are compared, one writer fixing the length of the female as 24, a second as 23, and a third as 22 inches; while one makes a difference of 3 inches in the size of the two sexes, whereas another states that the cock is only slightly smaller than his mate. The most conspicuous feature of the species is the white head and nape of the neck, which are streaked with brown, and the former marked by a dark stripe extending backwards on each side from the beak across the ear-coverts to the latter; the remainder of the upper-parts are umber-brown shot with purple, the tail being, however, barred above with paler brown and below with whitish, these bars tending to disappear in old birds; the under-parts are white, interrupted by a band of dark spots across the upper part of the breast; the beak and legs are blue, and the eyes yellow. The hen is said to be distinguishable by the darker colour of the breast-band. In immature birds the feathers of the upper-parts have pale edges, and the barrings on the tail are more distinct. The downy nestling is sooty brown above, with a band of dull white along the back and the margin of the wings, and white beneath.

The origin of the name osprey, or ospray, is not known with certainty, although it is supposed by a great authority to be a corruption of "ossifrage" (bone-breaker), a title properly belonging to the bearded vulture or lammergeier. The term "osprey" now applied in the feather-trade to the lovely white breeding-plumes of the egret, appears to be a corruption of their French name, *esprit*.

The distribution of the osprey is almost world-wide; and the bird may be found either on the coast, on estuaries, on rivers, or on large inland sheets of water. It should, however, be mentioned that by some writers the American and the Australian ospreys are regarded as distinct species; but if separable at all, they do not appear worthy of more than racial or subspecific rank. In the northern hemisphere ospreys breed so far north as Lapland and Japan, and so far south as the Red Sea, but to India they are mainly winter-visitors, although they breed in the Himalaya. The nesting-season ranges from the middle of April to the early part of June; eggs in the British Museum collection having been taken in various parts of Europe at dates ranging from April 24 to June 8.

A single egg in the above-named collection attests, if rightly labelled, the former breeding of this handsome bird in England;

but some doubt has been expressed as to whether the species ever really nested in the Lake District, an account to that effect dating from the seventeenth century referring perhaps to another bird. Be this as it may, the report of the former breeding of the species on the south coast of England appears to be unsupported by any tangible evidence. In Scotland, on the other hand, ospreys doubtless nested to a large extent in former days, Ardvreck Castle, in Sutherlandshire, being one of these old breeding-places. Nowadays, thanks to special protection, the species still nests in two localities in Inverness-shire, and in one in Ross-shire; while in 1891 a nest was recorded from a fourth district. In 1904 it was stated, however, that the osprey was soon likely to be exterminated as a breeding-species in Scotland. Although there is no record that the osprey ever nested in Ireland, the bird occurs not unfrequently as a casual visitor, generally in autumn, such visitors being, as a rule, if not invariably, immature individuals. Similar autumnal stragglers mainly represent the species at the present day in England; but now and then a pair of adult birds is seen in spring. From Scotland the species departs in autumn in search of a milder winter home.

Ospreys live entirely on fish, which they seize in their claws and carry off to a convenient feeding-place, after having dashed down into the water with a great splash from a considerable height overhead. The fish, when in the claws of its captor, appears to be always held with the head pointing forwards. As sometimes happens also in the case of the white-tailed eagle, an osprey may occasionally seize a fish too heavy for it to lift out of the water, when the bird, in consequence of being unable to extricate its claws from the flesh of the intended victim, is pulled under water by the latter and drowned; the fish, of course, also perishing sooner or later. Quite recently a British resident in Assam found on the bank of a river the carcase of a masir carp to which was attached the feet and part of the body of an osprey which had perished in this manner. As in the case of the eagle, the nests may be situated either on rocks or in trees, the latter being apparently the favourite site in Europe. Indeed, forests in the neighbourhood of waters are in many districts the special resorts of the osprey; and on many of the Himalayan rivers it is no uncommon sight to see one of these birds perched on a dead trunk on the outskirts of the forest either engaged in devouring its prey or taking a well-earned rest. Ospreys are exceedingly shy birds, and keep, as a rule, far from the haunts of men; but when a situation to their liking is found, they are sociable birds, and in some parts of North

America nest together in large colonies. As usual among the larger birds-of-prey, the nest is a huge untidy structure of sticks with a certain amount of lining; but the eggs are remarkable for the great beauty of their colouring and marking, on which account they are highly prized by collectors. Usually three in number, they have a white ground, upon which are spots and blotches of red and purplish brown, sometimes massed at the larger end so as to almost obscure the white; in length they measure about $2\frac{1}{2}$ inches. They are laid in a slight hollow on the flat upper surface of the nest.

Barn-Owl
(*Strix flammea*).

The barn-owl, or screech-owl (the *Aluco flammea* of some authors), is our first representative of the order Striges, or nocturnal birds-of-prey—a group which is often regarded as serving to connect the Accipitres with the Psittaci, or parrots (the latter unrepresented in the British fauna). Had we to deal with the skeleton alone, it is probable that owls would never have been separated in systematic zoology from the diurnal birds-of-prey. The soft-parts are, however, very different in the two groups, and the evidence of these points to the near affinity of owls to goatsuckers. In common with the osprey, the owls are characterised by the outer toe being reversible, so that it can be turned backwards to act with the hind-toe. They are, however, specially distinguished by the forward direction of the generally large eyes, and the short and sharply-curved hooked beak, which is covered at the base by a waxy "cere," almost completely concealed by a mass of bristly feathers growing from the forehead and the region of the ears, the nostrils being pierced in this cere in the same manner as in the Accipitres. In the majority of owls the head is large, with the feathers of the face radiating outwards from each eye as a centre, and collectively forming what is known as the face-disk; this being defined externally by a frill of dense, stiff feathers. It is this which gives to the more typical representatives of the group their characteristic "owlish" physiognomy. The somewhat similar face-disk of the harriers (in which the eyes are directed outwards) cannot be regarded as indicative of any special affinity between those birds and the owls, the two structures having doubtless been developed quite independently.

In many owls a pair of "horns," or, rather, ear-tufts, is developed above the upper margin of the face-disk. An owl's plumage is noticeable on account of the soft loose structure of the feathers—an arrangement largely conducive to the silent flight of these nocturnal birds, which are thus enabled to pounce suddenly upon their unsus-

pecting prey. The usual brown or tawny colouring of the plumage, delicately stippled in some instances with fine hair-like markings, is probably another adaptation to nocturnal habits.

Owls agree with the diurnal birds-of-prey in the presence of the hind-toe and of eleven primary quills to the wing, as well as in the clearly defined spinal feather-tract on the neck, and in the palate being of the closed or bridged type. From the more typical members of the Accipitres (but not from the American condors) they differ in having the oil-gland naked, as also in the absence of down and of after-shafts to the feathers (these being wanting, however, in the osprey as well as in the condors). Another feature by which owls are distinguishable from the Old World diurnal birds-of-prey is the presence of a pair of flat surfaces on the basal rod of the skull for the articulation of the movable bones of the palate, but since these surfaces are present in the American condors, it is obvious



MOUNTED IN THE ROWLAND WARD STUDIOS

BARN-OWL.

that this character, like those first mentioned, cannot be regarded as of any great importance. In the structure and relations of the muscles and tendons of the feet, as well as in the arrangement of the arteries of the neck, and in the presence of two blind appendages to the intestine, owls are like the falcons and eagles, although the structure of these appendages comes close to that obtaining in the goatsuckers. Moreover, owls lack a certain muscle in the leg—the ambiens—which is developed in the falcon tribe.

In laying pure white eggs—which are very short in proportion to their breadth, and are usually deposited in holes in trees—owls differ markedly from the diurnal birds-of-prey; but here, at any rate, we

have probably to do with an adaptive rather than an essential feature. And it is noteworthy that while some owls lay their eggs in the deserted nests of other birds, a few are reported to build nests of twigs for themselves in hawk-fashion. Like young falcons, newly hatched owls are helpless and thickly covered with down, and require long attention on the part of their parents. Again, although in some owls there is no difference in this respect, in others the female exceeds her partner in size, but not to the same extent as in the Accipitres. There is no seasonal change in the colour of the plumage, and the young differ but little from the adults.

As already mentioned incidentally, the great majority of owls are nocturnal or subnocturnal in their habits ; and all are carnivorous, feeding for the most part on field-mice, shrew-mice, small birds, or reptiles, although a few have taken to a diet of fish, while many of the smaller kinds are content with large insects. A peculiarity of the group is the habit of rejecting the indigestible portions of their food, which are disgorged in the form of pellets ; large accumulations of such pellets being often found beneath the roosting-places of these birds.

From the foregoing remarks it will be apparent that many of the points in which owls differ from the diurnal group of predaceous birds are largely due to their nocturnal mode of life, coupled with their habit of nesting in holes ; and it is probable that the forward direction of their eyes and the presence of the face-disk are attributable to the same cause ; the latter peculiarities being evidently well suited, in correlation with the large size of the eyes themselves, for gathering up every available ray of light.

The barn-owl is the type not only of the genus *Strix*, but of the family *Strigidae*, which includes, in addition, a second genus from Madagascar. The family is specially characterised by the presence of only a single shallow notch on each side of the hind, or lower, border of the breast-bone, and by the union of the latter with the merry-thought or furcula, as well as by the circumstance that the second joint of the middle toe considerably exceeds the basal one in length, while the inner edge of the middle claw is serrated.

Having no ear-tufts, the barn-owl differs from all other British representatives of the order in that the aperture of the ear is square and protected by a large quadrangular flap of skin, and also by the serrated inner edge of the claw of the middle toe. Except that the hen is slightly the larger, the two sexes are alike externally ; there are, however, two colour-phases common to both. In the typical phase the face-disk is white with a brownish rim ; the upper-parts are bright

orange-tawny, stippled with brown, grey, and white ; the under-parts white ; and the legs clothed with short feathers, which become almost like hairs on the toes. In the much rarer dark phase the face-disk shows a chestnut tinge, and the under surface is deep golden buff spotted with blackish grey, while the back is darker than in the ordinary form. Immature birds present no characteristics of colour by which they can be distinguished from the adult. The long down of the nestling is white, giving to the creature the appearance of a powder-puff.

On the assumption that all barn-owls are merely local races of a single variable species, the distribution of the latter will include almost all the temperate and tropical regions of the world. There are, however, certain peculiarities connected with this distribution worthy of brief mention. In Europe, for instance, barn-owls are found so far north as southern Scandinavia and the Baltic countries, whence they extend to the central districts of Russia ; but for some unexplained reason they appear to be absent from the whole of northern Asia, inclusive of Siberia, as they are from China. They reappear, however, in India, the north of Ceylon, and Burma, whence they extend southwards to Oceania and Australasia, although in a slightly modified form, and they are to be met in suitable localities throughout Africa and the greater part of America.

With such an enormous range, the barn-owl must of necessity exhibit great diversity in its times of breeding ; and whereas in Great Britain the nesting-season lasts from the end of April to July, in the north of India it occurs from February to June, and in peninsular India from November to January. In Europe it frequently happens that a second, and even a third, clutch of eggs is laid while the original brood is still in the nest ; the presence of the latter probably aiding the incubation of the second batch of eggs when the parent-bird is hunting for prey. The commencement of the laying-season in Europe is later than that of most owls ; and a second peculiarity of the species is to be found in the relatively elongated form of the eggs ; their average dimensions being about 1.69 by 1.28 inches.

The species takes its ordinary name from its habit of frequenting barns, church-towers, ruins, and such-like buildings, where it passes the daytime in a slumbering condition, with closed eyes, uttering when disturbed a loud hiss. With the shades of evening the barn-owl wakes up, and commences its flight in search of food, which consists almost entirely of rats, mice, and field-mice ; it is therefore eminently a bird which should receive all possible protection at the hands of man. But

"give an owl a bad name," to parody a familiar proverb—and every owl in every country of the world is regarded with aversion by the ignorant as a bird of evil omen—and nothing will save it from destruction whenever opportunity occurs. Not unnaturally, small birds regard all owls as their enemies, and mob and hustle them whenever they make their appearance in the open. Too lazy to make a nest, the barn-owl lays its clutch of from three to six eggs on the floor of its roosting-place; sometimes with no protection at all, but at others surrounded by a ring of its own disgorged castings. It should be added that, as a very exceptional thing, young barn-owls have been taken in England in November and December. The second name of the species is taken from its well-known blood-curdling screech, uttered chiefly in the breeding-season, and sometimes while on the wing. As the species is found everywhere in the British Islands, nesting as far north as Caithness and the Inner Hebrides, no remarks on local distribution are required.

Barn-owls are sometimes distinctly luminous at night, probably owing to their plumage having come in contact with phosphorescent bacteria developed in the decaying wood of their roosting resorts.

A remarkable instance of the capture of a barn-owl and a rat in the same trap has been recorded; the bird being in the act of seizing its victim as the jaws of the trap closed to embrace both in its iron grip.

Long-eared Owl
(*Asio otus*).

The long-eared owl is the typical representative of the second family of the group—the Asionidæ (equivalent to the Bubonidæ of many naturalists)—which includes all the other species. From the Strigidæ the Asionidæ are distinguished internally by the presence of a couple of deep notches on each side of the hind border of the breast-bone, which is quite free from the merry-thought, or furcula. Externally they all agree, and thereby differ from the barn-owl, in having the second and basal joints of the middle front-toe approximately equal in length.

Both the long-eared and the short-eared owl (to be mentioned next) are "horned" species, which differ from all other British representatives of the group in the great size of the openings of the ears; these extending forwards from the gape to a point above the pupil of the eye on each side, and being protected by a very large flap, or cover. As its name implies, the present species is easily distinguished from its relative by the greater length of the ear-tufts, or "horns"; while it is further characterised by the presence of faint dusky transverse stippings

on the feathers of the beak and breast. As regards colour, the feathers of the upper surface are stippled and barred with fine dusky wavy lines on a grey and buff ground ; the face-disk is pale buff with darker centre and margin ; the under-parts are warm buff and grey with broad streaks and delicate transverse blackish bars ; and the eyes are bright golden yellow. The sexes are alike in size. In young birds the markings are more defined, and the face-disk is yellower. In the nestling the down is greyish white, and the face-disk dark ; and the first feathers are of a peculiarly "fluffy" character, with dusky barrings. The complete feathering of the legs is a characteristic of this owl.

Unlike the barn-owl, the long-eared owl is a migratory species, inhabiting Europe (inclusive of Iceland) and northern and Central Asia (inclusive of Japan), and visiting northern Africa and north-western India in winter. Its breeding-range in Europe extends as far north as about latitude 63° , and in Asia as far south as Palestine and probably the higher ranges of the Himalaya ; indeed in all its more southern breeding-resorts it apparently nests only in mountainous forests. In the British Isles it breeds locally almost

everywhere, although only twice recorded from the Outer Hebrides ; its favourite resorts being pine-forests, or clumps of firs amid deciduous trees. It is represented in America by a closely allied bird, which, although generally described as a distinct species, may be best regarded as a dark local race, under the name of *Asio otus wilsonianus*.

Boughs form the favourite roosting-places of this owl, which when in repose depresses its long ear-tufts, and harmonises to perfection with the colouring of its surroundings. When disturbed in the day-time, its flight is almost invariably short. In its evening flight it beats



MOUNTED IN THE ROWLAND WARD STUDIOS

LONG-EARED OWL.

carefully and swiftly along the edges of the woods (mobbed at first by such small birds as may be still awake) in search of prey, which includes field-mice, rats, small birds (which are captured while roosting), and, it is said, squirrels. Although, as already stated, the usual haunts of the species are fir-woods, in winter small parties of long-eared owls may be seen on the gorse of the South Downs, probably emigrants from north-eastern Europe.

The deserted nest of a crow, sparrow-hawk, or other large bird serves as the long-eared owl's nursery; and in this, after a few repairs



MOUNTED IN THE ROWLAND WARD STUDIOS

LONG-EARED OWL AT BAY.

and alterations have been made, are laid, as a rule in the latter part of March or during the first few days of April, a clutch of from four to six eggs, although occasionally as few as three or as many as seven. Several days elapse between the laying of the different eggs, and as incubation (which is shared by both sexes) takes place forthwith, both eggs and young are in due time found in the nest together. For the incubation of each egg a period of about twenty-four days is required. The eggs are not unlike those of a ring-dove, but larger, rounder and less glossy, with a coarser grain to the shell. The ordinary note of this owl has been compared to a dog's bark; but in addition to this, squeaks and a feeble attempt at hooting are characteristic of the species.¹

¹ The account of the habits of this species is abbreviated from an article in the *Field* of 1905.

Short-eared Owl From the preceding species the short-eared owl (the *Asio accipitrinus*). *Asio brachyotus* of some authors) is, as already mentioned, easily distinguished by its shorter "horns."

In addition to this, the grey stippings and transverse barring of the feathers of the back are absent, while the bars on the tail of the present species are broad and restricted in number to five, whereas in the long-eared bird they are narrower and more numerous. The general colouring is buff, thickly streaked and blotched with dark brown. A slight superiority in size over her partner serves to distinguish the hen. In young birds the colour of the plumage is browner and darker, and the



MOUNTED IN THE ROWLAND WARD STUDIOS

SHORT-EARED OWLS.

markings are more pronounced; while the eyes are sulphur-yellow in place of golden yellow. The long down of the nestling is greyish white in colour.

Although unknown in Iceland, the short-eared owl has an almost world-wide distribution; the American form not being separated even as a race. To the British Isles the species is chiefly an immigrant for the summer-months, although it is stated to be resident throughout the year in the west of Scotland, and in 1904 it was recorded as breeding near Scarborough. Its breeding-range extends as far north as Lapland, and in Great Britain includes the Orkneys, Scotland, and the north of England; while nests have been found from time to time in Yorkshire, Norfolk (from which county the British Museum

possesses eggs; and Suffolk, Cambridgeshire, Huntingdonshire, and Essex, and Cardiganshire. To the south of England, on the other hand, the short-eared owl is merely a winter-visitor, although an instance of its breeding in Devonshire is on record; and when these birds first make their appearance in the country in autumn they are not unfrequently to be seen in small parties. Ireland is in much the same position with regard to this species as is the south of England, being visited only in winter by varying numbers of these owls, none of which have ever been known to remain to breed.

Unlike its long-eared cousin, the present species is essentially a bird of the open country, frequently making its appearance during broad daylight to hunt for short-tailed field-mice, which constitute its chief prey. During the abnormal increase of these mischievous rodents in the Scottish lowlands during the summer of 1893, short-eared owls likewise made their appearance in unusual numbers, and did good service in helping to stay the plague. Naturally they enjoyed a surfeit of food, and this stimulating diet caused the number of eggs in a clutch, which is usually from six to eight, to rise to as many as ten or a dozen. The eggs are laid on the ground, without even an apology for a nest, sometimes in a mere saucer-like depression, but on other occasions in the midst of a tussock of heather. In England this owl may be flushed from turnips in autumn, while in India it is frequently put up when beating long grass for black partridge or quail.

Tawny Owl
(*Syrnium aluco*).

The tawny owl, or wood-owl as it is commonly called in many parts of the country (the *Strix aluco* of some authors), is a species without ear-tufts, easily distinguished by the circumstance that there is a difference in the size of the apertures of the ears, the left one being considerably superior in this respect to its fellow, although both are relatively large, crescentic in shape, and capable of being closed by a cover. Like the barn-owl, this species exhibits two colour-phases, the one rufous and the other grey, the former being the commoner in the British Isles. It should, however, be mentioned that the tendency to red is stated to be always more marked in the hen, who considerably exceeds her partner in size. In the rufous phase the ground-colour of the plumage is rich chestnut, upon which are dark brown streaks and stipplings, relieved by white blotches produced by the white outer webs of the external scapular feathers, and the white tips of the greater wing-coverts; the wing-quills are barred with chestnut-brown and mottled

with grey, the face-disk is tinged with chestnut, and the breast is generally white with streaks and bars of chestnut-brown, the latter produced by broad tips of that colour to the feathers of the middle region. In some specimens, however, the breast is mottled with pale chestnut, the white barrings being less in evidence; while other individual variations in colour-details are by no means uncommon. In the grey phase the upper-parts are streaked with dusky brown



MOUNTED IN THE ROWLAND WARD STUDIOS

TAWNY OWLS (MALE AND FEMALE).

and stippled with wavy bars on a grey ground, the breast-feathers being white with brown arrow-head markings. That these two phases have a meaning is almost certain, and until this is explained ornithologists have done only half their work; the mere record of the fact being practically useless. When first hatched, the nestlings are clothed in grey down, but this is succeeded while they are still in the nest by a "fluffy" plumage of which the feathers are buff tipped with white and thickly barred with pale brown on both surfaces.

Although resident throughout Great Britain, from Skye and the

Inner Hebrides southwards, it is a remarkable and at present unexplained fact that it is absent from Ireland. It is true that one or two alleged instances of its occurrence in the latter island have been cited, but these are not admitted in the latest work on Irish birds, and, if authentic, refer merely to stragglers. As regards Great Britain, while one authority¹ states that it is diminishing in numbers owing to persecution, a second² observes that it is increasing in many Scottish counties: possibly the discrepancy may be accounted for by the difference in the dates of the two statements.

The range of the tawny owl includes the greater part of Europe, as far north as southern Scandinavia, and about latitude 58°, north Africa, and south-western Asia; but in the Himalaya and China it is replaced by the nearly related *Syrnium nivicola*.

As its name of wood-owl implies, the species is a denizen of wooded districts, where its wailing hoot often breaks the stillness of the summer night. Thoroughly nocturnal in habits, the tawny owl subsists largely on field-mice and shrew-mice, but varies its diet with frogs and fishes (as does the barn-owl occasionally), and such small birds as it may happen to find roosting. Moreover, in the breeding-season it is reported to take young pheasants and an occasional baby rabbit; and there is accordingly some justification for the persecution to which it is subjected at the hands of gamekeepers. The clutch of three or four somewhat glossy eggs, each measuring about $1\frac{3}{4}$ inches in length, may be laid, sometimes as early as the third week in March, either in a hollow tree, in the deserted nest of a crow or magpie, amid rocks, or, very rarely, on the ground. When the nest is approached, the old birds will make furious dashes at the intruder on their domain.

Tengmalm's Owl (*Nyetala tengmalmi*). Although nearly related to the tawny owl, with which it agrees in the absence of ear-tufts, the much rarer Tengmalm's owl, which is really only a straggler to Great Britain, and quite unknown in Ireland, may be at once distinguished by its much smaller size, as it measures only $9\frac{3}{4}$ inches in length, against 14 inches in the former. It is further characterised by the still greater want of symmetry between the size of the openings of the ears on opposite sides of the head; this lack of symmetry extending to the skull, as may be demonstrated by feeling the two sides of the head. Here, again, we have need of an explanation as to the reason of this strange

¹ Sharpe, *Handbook to the Birds of Great Britain*, vol. ii. p. 101.

² Harting, *Handbook of British Birds*, p. 27.

abnormality. A further difference from the tawny owl is to be found in the circumstance that the legs and feet are feathered right down to the claws, all these differences being amply sufficient to justify the reference of Tengmalm's owl to a separate genus.

As regards colouring, the plumage of the male is umber-brown on the upper-parts, marked with small white spots on the crown of the head and larger blotches on the back, while the tail shows narrow white bars; the under surface being greyish white spotted and streaked with umber. Besides being larger, the female has a less spotted plumage; while in young birds the spotting is still less, and the general colour darker. As the species does not breed in this country, it will be unnecessary to refer either to the nestlings or the eggs.

If its American representative, the so-called *Nyctala richardsoni*, be relegated, as it ought, to the rank of a more local race, Tengmalm's owl will have a circumpolar distribution, in great part restricted to the more northern zones of both hemispheres, since although it breeds as far south as the Alps and Carpathians, it is only found in such latitudes at comparatively high elevations. Owing to its breeding so largely in Arctic latitudes, where there is practically no night during the greater part of the nesting-season, Tengmalm's owl is to a considerable extent diurnal in its habits.

Spring and autumn are the seasons when this owl favours us with its rare visits. Of these about twenty-nine instances (one represented by two and another by three individuals) appear to have been recorded during the nineteenth century; they range from Orkney in the north to Kent in the south.



MOUNTED IN THE ROWLAND WARD STUDIOS

TENGMALM'S OWL.

Eagle-Owl
(*Bubo ignavus*).

All the foregoing representatives of the Striges, with the exception of the barn-owl, which, as already stated, typifies a family by itself, are included in the Asioninæ, or first subfamily of the Asionidæ; and are collectively characterised by the openings of the ears being larger than the eyes, crescentic or oval in shape, and capable of being closed by a cover, while the face-disk is well developed, with a distinct marginal frill, and

extending nearly as much above as below the eyes. With the eagle-owl or great horned owl (the *Bubo maximus* of some authors and the *Bubo bubo* of others) we come, however, to a second subfamily group, the Buboninæ, in which the ear-openings are not larger than the eyes, and without covers, while the face-disk is generally more or less ill defined, with little or no marginal frill, and never extending so far above as below the eyes.

The eagle-owl itself in general colouring and the presence of large ear-tufts recalls the long-eared owl, from which, however, in addition to



MOUNTED IN THE ROWLAND WARD STUDIOS

EAGLE-OWL.

the general characteristics mentioned above, it is distinguishable at a glance by its greatly superior size, the length varying between 24 and 27 inches against about $14\frac{1}{2}$ inches in the smaller species. The general ground-colour of the plumage is silvery white deeply tinged with golden buff, blotched with dark brown, and barred with fine wavy transverse dusky bars; the greater wing-coverts are thickly barred with dark, the pale buff interspaces being mottled with grey, while the quills are buff with broad bars of greyish brown, thickly mottled in the interspaces of their outer webs with dusky on a pale buff or silvery ground; the rich

golden buff of the breast is ornamented with broad dark brown streaks ; and the dull white ground of the flank-feathers shows a full tinge of buff, upon which are a number of fine transverse dusky lines extending outwards from dark brown shaft-streaks. Except for her superior size, the hen is distinguishable from her mate in appearance ; and young birds are coloured like their parents. Nestlings are clothed in dirty white down.

The chief ground for giving this magnificent bird a definite place in the British list is a report to the effect that it at one time inhabited Orkney, and perhaps bred there. Whether this be true or not, there is no doubt that wild specimens have occasionally been taken both in Orkney and Shetland, and probably also in the north of Scotland. As to the records of the occurrence of the species in England there can be little hesitation in regarding many at least of these as based on specimens escaped from captivity, and there would accordingly be little use in giving a detailed list. It may be mentioned, however, that one eminent ornithologist has expressed the opinion that some of the examples taken in England were wild birds. There is no authenticated record of the occurrence of the species in Ireland.

The range of the eagle-owl includes the greater part of Europe, North Africa, and northern and Central Asia, the so-called *Bubo turcomanus* not being more than a local race. The breeding-range includes Lapland, Gibraltar, and Greece ; eggs from all these three localities being included in the British Museum collection. Its large size and fierce disposition render the eagle-owl by far the most formidable of the nocturnal birds-of-prey ; and its prey comprises not only game-birds, hares, and rabbits, but even, it is said, fawns, while crows frequently afford a meal to its almost insatiable appetite ; and, for lack of larger victims, rats and mice are not disdained. It is an early breeder, laying its clutch of two or three eggs in the latter part of March or the beginning of April, sometimes selecting for their reception the deserted nest of some other bird or a hollow tree-trunk, but on other occasions depositing them on a ledge of rock, or even on the bare ground. A loud, twice-repeated hoot is the distinctive cry of the eagle-owls. They thrive well in captivity, and some years ago quite a number were kept by a gentleman in Norfolk. That they will live to a great age is testified by the fact that there died in 1904 a female which had been kept seventy-five years in captivity in an aviary in England. Brought from Norway in 1829, this bird within the last thirty years of its life reared no less than ninety young. There appear to be few recorded instances where the age to which the species will attain has been so definitely ascertained as in this case.

Snowy Owl
(*Nyctea scandiaca*).

It is somewhat to be regretted that the name of white owl is one of the titles of the barn-owl, as it would have been very applicable to the great snowy owl, or snow-owl (the *Nyctea nivea* of some ornithologists, and the *Nyctea nyctea* of those who favour the reduplicative system of nomenclature). Next in point of size to the eagle-owl, the present species is unmistakable on account of its more or less pure white plumage,



MOUNTED IN THE ROWLAND WARD STUDIOS

SNOWY OWL (FEMALE).

and therefore really requires no description, although for the sake of uniformity a brief one may be given. As a rule, the dazzling white of the adult plumage is marked by a variable number of black or dark brown spots or bars; but there is great individual variation with regard to these markings, some birds showing a large amount of black, while others are almost wholly white. According to some authorities, snowy owls become whiter with age, but the females, which are rather larger than the males, appear to be always more heavily spotted and barred than

the latter, and in young birds the dark markings are certainly still more abundant. In marked contrast to that of the eagle-owl, the nestling is clothed in sooty-brown down. It may be added that snowy owls possess distinct, although inconspicuous, ear-tufts.

That the plumage of the snowy owl is a special adaptation to existence in the Arctic regions, which form the main habitat of the species, is self-apparent. Since, however, both the snowy owl and the eagle-owl breed in Lapland, it may be legitimately asked, why, if a white plumage is essential in the one case, it is not equally so in the other? To this it may be replied that in reality both birds have a

protective type of coloration, the eagle-owl haunting the woods, whereas the snowy owl frequents the open country, and in Siberia is found on the open tundra beyond the forest-zone, where the dark-coloured species is unknown.

The distribution of the snowy owl is circumpolar, and in Grinnell-land, where it arrives in the latter part of March and remains till the end of August, the species has been found nesting so far north as latitude $82^{\circ} 32'$. In Lapland it breeds commonly, as it does in Novaia Zemlia, but to Iceland, the F  roes, and Spitzbergen it is only a straggler, as it is to the British Islands and a large part of northern and central continental Europe. There are, indeed, reports as to the former nesting of the snowy owl in Orkney, Shetland, and the Hebrides, but these do not appear to be definitely established. To the Outer Hebrides, as well as the more northerly British Islands, the species is a by no means uncommon visitor, generally making its appearance during the autumn and winter months. Apart from the visitors to the above-named islands, specimens have been recorded in Scotland from Sutherland, Ayrshire, Caithness, and Inverness-shire, and in England from Northumberland, Yorkshire, Norfolk, Suffolk, Devon, and Cornwall, Norfolk claiming no less than seven up to the year 1900. In Ireland up to the same date there are about thirty records, mostly from November to March, although one case occurred in April. Among recent occurrences, it may be mentioned that one specimen was taken in Norfolk in April 1905, and a second in Shetland in November of the same year.

Lemmings constitute a large proportion of the food of the snowy owl, which follows these rodents in considerable numbers during their periodical migrations. Larger creatures, such as Arctic hares, ptarmigan, grouse, ducks and other water-fowl, as well as an occasional fish, are, however, captured and devoured. As a rule, the snowy owl is a silent bird, but it sometimes utters a kind of harsh croak when on the wing. As the lands where it chiefly breeds have practically no night in summer, the species is of necessity to a great extent diurnal in its habits. A hollow in the bare ground or amid the tall moss covering so much of the Siberian tundra, serves, with the aid of a little moss or lichen and a few feathers as lining, the purpose of a nest, in which are laid from six to eight, or even more, creamy-white eggs, of a somewhat more elongated shape than those of the eagle-owl. As is so commonly the case among owls, the eggs of a clutch are laid at considerable intervals, so that young and eggs may be found together in the same nest. Beyond the forest-zone these owls pass the time of

repose on the ground ; but when they enter the wooded districts, as is sometimes the case, they avail themselves of trees as roosting-places.

The hawk-owl (*Surnia ulula*) is too rare a straggler to our islands to claim full notice or an established position in the British list. It is unfortunate that naturalists apply the name of "hawk-owl" to two totally different types of birds, namely, the present species and the members of the Asiatic genus *Ninox*, the latter being the more hawk-like. A general hawk-like appearance, and especially the long wedge-shaped tail and strongly barred plumage of the under surface, are the most striking features of the present species. Typically the hawk-owl is a native of northern Europe, but it is represented by a local race (*S. ulula deliata*) on the two sides of Bering Strait and Siberia, and by a third (*S. ulula funerea*, or, as some would have it, "*caparoch*") in Arctic America ; the latter being distinguished by its broader and redder chest-bands and blacker head. Of this American race (regarded by some writers as a species) six occurrences in Britain have been recorded, namely, one in Cornwall in 1830, one in Somerset in 1847, a third near Glasgow in 1863, a fourth (represented by two specimens) near Greenock in 1868, a fifth in Aberdeenshire in 1898, and a sixth in Northamptonshire in 1903. Of the typical European race one example was taken in Shetland in 1860, and a second in Wiltshire in 1876.

The resemblance of the hawk-owl to a hawk is (like that of the cuckoo) apparently an instance of true mimicry, for not only has the owl a hawk-like appearance, but it has likewise the flight of a hawk, and utters a screaming cry which might well be taken for that of a kestrel. The dense pine-forests of the north are the favourite haunts of the hawk-owl.

Scops Owl **(*Scops giu*).**

The small owl known by the title of "scops" is a diminutive relative of the eagle-owl, and the smallest of all the British "horned owls," measuring not more than 8 inches in total length. This small size, coupled with the presence of ear-tufts, is, therefore, sufficient to enable the species to be recognised. In colour the upper-parts are a mixture of chestnut and wood brown, with what may be best described as a "frosting" of grey and dark streaks, a similar grey frosting also pervading the under-parts, which are buff with dark brown streaks ; the face-disk is speckled with greyish white and brown and margined with brown ; while the eyes are yellow. The extension of the feathering of the legs to the bases of the toes, which are sparsely covered with bristles, is another

characteristic of the species. Although the female is distinguishable externally from the male merely by her slightly larger size, immature birds are recognisable by the more rufous tinge of their plumage.

The scops owl (*Scops scops* of some authors) ranges over the greater part of Europe to the south of Scandinavia, as well as northern Africa, whence it extends through south-western and Central Asia to India; some of the Indian birds presenting characteristics of colour which may entitle them to rank as a distinct race.

In habits the scops is to some extent migratory, and this will account for its occasional appearance in England, more especially in the southern and eastern counties. The number of recorded occurrences, which include one from Yorkshire and a second from Cumberland, is considerable, but there can be little doubt that some at least of these are based on birds escaped from captivity, although others are genuine. This being so, little advantage would accrue from chronicling the individual instances, although an exception may be made in the case of a specimen recorded from Kent in 1901. Reference may also be made to a specimen taken in Sutherlandshire in 1854, as being the most northerly record. In Ireland the species is reported to have occurred at least seven times up to the year

1900, mostly in spring and summer. The alleged nesting of the species in Sutherlandshire is sufficiently refuted on the ground of latitude, while that in Eden Dene may be discredited from other considerations.

Scops owls, of which there are several different species, ranging over the temperate and tropical zones of the greater part of the world with the exception of Australia, are thoroughly nocturnal birds, feeding mainly on insects (although occasionally taking a small bird or a mouse), and uttering a peculiar and unmistakable two-syllabled cry, repeated at regular and somewhat long intervals. This cry is generally uttered from the shelter of a bush or thickly foliated tree in the evening, and serves to indicate the presence of these comical-looking little owls in a



MOUNTED IN THE ROWLAND WARD STUDIOS

SCOPS OWL.

district. Those interested in attempts to explain the evolution of the colour-pattern in birds' feathers will find a paper on this subject in connection with the present species in the Zoological Society's *Proceedings* for the year 1901.

Two alleged instances of the occurrence of the American scops, or mottled owl (*Scops asio*), in England are based in all probability on specimens escaped from captivity, or on mis-identification, or both together.

Little Owl
(*Athene noctua*).

In several parts of England, notably southern Bedfordshire and parts of Hampshire and Northamptonshire during the last dozen years, it has been no uncommon event to see a solemn "owlet" perched upon some way-side gate-post, and staring and blinking in a manner peculiar to owls alone. Although such birds are examples of the little owl, they must not be taken as indications of the natural occurrence of this rare visitor in England, as they have in most cases been turned out in private parks or coverts, whence they have spread over the neighbouring districts.

Though occasionally confounded with Tengmalm's owl, the little owl (the *Carine noctua* of some ornithological works), which is devoid of horns, may always be distinguished from that species by an examination of the apertures of the ears, which will be found to take the form of small round holes, without covers. In addition to this, it should be noticed that in the present bird the toes are scantily covered with bristles in place of being completely feathered. As regards colour, the plumage of the little owl is dark brown on the upper-parts with triangular white spots on the head, round white spots on the neck and wings, and white bars on the tail; below it is white with heavy dark brown streaks, while the ill-defined face-disk is greyish white, the great staring eyes being yellow. Nine and a half inches is the length of the full-grown female, while the male falls short of this by the odd half-inch. As is so frequently the case in this group, young birds are redder than their parents.

In its typical form the little owl is a native of central and southern Europe, but it is represented by a redder race (*Athene noctua glaux*) in Egypt and south-western Asia, while in Turkestan and India it is replaced by the nearly allied *Athene bactriana*, distinguished by the fully feathered toes. Although there can be little doubt that some of the numerous examples of these owls recorded in England—notably those dating from the early part of last century—were genuine migrants to this country, it is also certain that a very large percentage is the result

of introduction by human agency; and it would therefore be worse than useless to quote the details of such occurrences. As already mentioned, numbers of these little owls have been turned out by land-owners in various parts of the country during the last twelve or fifteen years; but even many of the earlier occurrences of the species are rendered doubtful, at least in the north of England, by the fact that a large number of these birds were liberated in Yorkshire in the year 1843. The process of liberation and spreading began in 1843 at Walton Park, Yorkshire, but the chief centres of dispersal have in recent years been Hampshire, Tring, Edenbridge in Kent, and Oundle. From Oundle the birds appear to have reached Woburn, where they breed freely. They also breed near Watford and other parts of Hertfordshire, while from the Kent centre these owls have colonised a considerable portion of the south-east of England. That the species finds conditions in this country suitable to its mode of life is demonstrated by the circumstance that pairs have nested and reared their young in several English parks. There was no record of the occurrence of the species in either Scotland or Ireland during the nineteenth century.

Little owls are far from being solely nocturnal birds, and may at times be seen hunting for insects, which constitute their chief food, in broad daylight. They also kill and eat a certain number of mice and small birds; and they can be tamed and trained to catch mice, beetles, and other vermin in dwelling-houses. The nest is a heap of rubbish in some hollow tree, upon which are deposited in April or May from four to six white eggs measuring between $1\frac{1}{4}$ and $1\frac{1}{2}$ inches in length.



MOUNTED IN THE ROWLAND WARD STUDIOS

LITTLE OWL.

As albino owls are rare, it is interesting to note that one white specimen of the present species was obtained at Cremona about the year 1900, while a second example, which was white with buff markings, was seen in North Holland in 1905.

Cuckoo (*Cuculus canorus*).

The cuckoo, wryneck, nightjar, hoopoe, bee-eater, kingfisher, woodpecker, and swift, collectively constitute a group of birds in regard to whose true affinities and proper classification there is still some difference of opinion among ornithologists. While it is certain that none of them

can be included in any of the foregoing groups, it is equally clear that they cannot be classed among the true perching-birds, or Passeres. By the older writers on ornithology the great majority of them were included in a group typified by the woodpeckers, and hence termed *Picariæ*; but anatomical investigations have demonstrated the existence of so many important structural differences between them that the tendency of late years has been to divide them into quite a number of separate orders, some of which are represented respectively only by a single family. Without for a moment denying that this may be the best workable arrangement, it will be more convenient in the present volume to regard them as forming a single ill-defined



MOUNTED IN THE ROALAND WARD STUDIOS

CUCKOO.

group under the collective name of picarian birds. To define this ill-assorted group will, however, be unnecessary (even if it were possible), as its various British representatives are perfectly easy of recognition by their own intrinsic characteristics. We may therefore proceed to the consideration of the various species without further introduction.

As regards the cuckoo, it is difficult to say whether this well-

known bird is more remarkable on account of its abnormal breeding-habits or from its striking resemblance in general appearance to a hawk—a resemblance which even extends to the replacement of an immature brown or chestnut plumage barred with dusky by an adult one in which the general tone above is ashy grey. That the hawk-like appearance of the adult cuckoo is an instance of true “mimicry” can scarcely be doubted; and it has been suggested, as noticed later, that this feature may be of advantage in instilling a wholesome fear of the intruder into the birds whose nests are adopted as nurseries. Even, however, if this be the case, it leaves unexplained the no less striking resemblance of the plumage of a young cuckoo to that of an immature hawk.

From all the birds hitherto noticed the cuckoo differs in having both the outer and the inner toes permanently turned backwards, so as to form a foot admirably adapted for grasping. This feature, coupled with the general hawk-like appearance and the long, broad, and rounded tail, will suffice to distinguish the cuckoo, which forms the type of the family Cuculidæ, from all other indigenous native birds. The two sexes differ but little in colouring and apparently not at all in size; the total length of the adult being about 13 inches. In the fully adult dress the colour of the upper-parts and the fore portion of the breast is ashy grey, the tail being of a somewhat darker shade, with small white spots; the lower part of the breast is white with broad dusky barrings; and the eyes and feet are bright yellow. In young birds, on the other hand, the upper surface is generally olive-brown with dusky barrings and a white spot on the nape of the neck, while the eyes are brown in place of yellow; there is, however, a rufous phase in which the ground-colour of the upper-parts is rich chestnut. The nestlings remain naked until they grow their feathers.

Needless to state, the cuckoo is only a summer-visitor to the British Isles, where it breeds; and whether we regard its breeding-area or its southern winter-resorts as its true home, must, as in similar cases, be to a great extent a matter of opinion. The bird at one season or another ranges over the greater part of the Old World, inclusive of Australia, and is common in India from July to April.

Much has been written about the breeding-habits of the cuckoo and the rearing of the young by foster-parents whose own offspring have been sacrificed by the intruder; and the whole story, of which the following is a brief epitome, reads like a romance, and is one of the greatest marvels of bird-life. As already stated, the cuckoo is a migratory species, wintering in the more southern countries of the

Old World, and breeding in the temperate and sub-Arctic zones of the northern hemisphere. In these respects it follows the practice of a host of birds of various species and orders; but, in common with many foreign species of the group of which it is the typical representative, it possesses the strange and remarkable habit of depositing its eggs, singly, in the nests of other kinds of birds. Arriving from its African winter-quarters about the end of March or early in April, the cuckoo spreads itself over almost the whole of Europe, passing even well north of the Arctic Circle; its advent being loudly proclaimed by the well-known note, or "song," of the cock, which, in its typical two-syllabled form—"cuk-ku"—is uttered chiefly during the breeding-season, the cry later on being many-syllabled and irregular (the "stuttering" of the cuckoo, as it is then called by country people). Of the two sexes, cocks are by far the more numerous; and it seems that each hen associates with several males, who quarrel much among themselves at the commencement of the breeding-season. In due course the hen drops her eggs into the nests of other birds, placing only one in each nest, and selecting more especially those of the pied wagtail, titlark, reed-wren, and hedge-sparrow as nurseries. After the egg is hatched, the young cuckoo, when only a few days old and still blind and naked, proceeds to eject its foster-brothers (or such eggs as may remain) by mounting them in turn in the hollow of its broad back, and then scrambling backwards to the edge of the nest, over which each is tilted, to perish miserably on the ground utterly neglected by its own parents. The latter, on the other hand, devote themselves entirely to the care of their voracious foster-child, who demands a large supply of food, and displays a remarkable degree of stupidity in the matter of receiving each morsel. By September the young cuckoo is full-fledged, and ready to follow its parents, most of whom have crossed the Mediterranean by the middle of July.

Before placing it in the nest, the female cuckoo generally lays her egg on the ground, whence it is conveyed to its destination in her mouth. So far as can be determined, it seems probable that individual cuckoos place their eggs in the nests of one particular kind of birds, if such are to be found; so that we may have "wagtail-cuckoos" and "hedge-sparrow-cuckoos." If this be so, the similarity in colouring often found to exist between the egg of the cuckoo and the eggs among which it is deposited is in some degree accounted for. It is noteworthy, however, that even when laid in hedge-sparrows' nests, cuckoos' eggs are very seldom blue. How this parasitic habit arose is very difficult to conjecture; but it is important to observe that it is shared by a

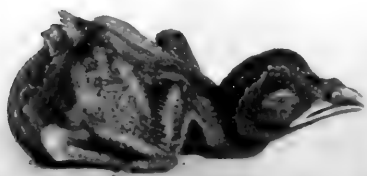
number of other kinds of cuckoos, some more or less nearly allied to the typical species, and others markedly distinct. Among the latter is the great spotted cuckoo (*Coccytes glandarius*) of southern Europe, which victimises magpies (*Pica caudata*), blue magpies (*Cyanopica cooki*), and crows (*Corvus cornix*). In the instance of the pies, the resemblance of the egg of the intruder to those of the rightful owner of the nest is remarkably close. On the other hand, there are certain cuckoos, such as the coucal (*Centropus madagascariensis*) of Madagascar, and the American black-billed cuckoo (*Coccyzus erythrophthalmus*), which build nests and incubate a clutch of their own eggs; the nest being remarkably small for the size of the bird. Finally, in certain South American cuckoos, such as the ani (*Crotophaga ani*), and the guira (*Guira piririgua*), several hens combine to lay in one nest, in which they take turns at incubation.

The parasitic habit is, however, not restricted to the cuckoo family, for the American cow-birds (*Molothrus*) drop their eggs singly among those of tyrant-birds (*Milvulus*) and other species; as do some kinds of African honey-guides (*Indicatoridæ*), in the nests of certain other birds.

Cuckoos are believed to find foster-nurseries by watching small birds building before they themselves are ready to lay, and remembering the situations. In most of the nests selected, the only way in which the foreign egg could be introduced is by means of the parent's beak; and it is probable that this mode of introduction is generally practised even when direct laying is practicable. As a rule, the female deposits her eggs unaccompanied by the male. Seventy days is the average length of the breeding-season; the hen arrives some eight or ten days after the cock, and usually lays her first egg from twenty to twenty-five days after the first call of her partner. About eight eggs are believed to be laid by each female, with an interval of some six days between each. If more than a single egg be placed in the foster-nursery, it means a scarcity of suitable nests in the district in proportion to the number of cuckoos; in the case of two eggs in a nest, they may be the product of either one or two birds; three eggs in a nest is the record. If the cuckoo's egg be laid in a nest before the rightful owner has deposited her own eggs, the nest is generally forsaken; but it seems probable that when a cuckoo's egg is found in a nest with a full clutch of eggs of the owning species the cuckoo has laid first, for it is the practice of the latter to remove one or more of the original eggs before introducing her own. It is also stated that in some instances the female cuckoo will revisit the nest, and turn out the rightful nestlings

or eggs, instead of leaving the task to her offspring, but this requires confirmation. If two cuckoos are hatched in the same nest, the weaker is ejected by the stronger. Sometimes a cuckoo's egg may be laid in a nest containing eggs ripe for hatching, and in such cases the young cuckoo may be unable to eject his foster-brethren; and if the nest be situated in a hole such ejection may be impossible, so that in both such cases the rightful nestlings and the intruder may be brought up together.

The following details of the history of a young cuckoo were recorded by an observer in Norfolk. On May 22, 1904, was found a hedge-sparrow's nest containing three eggs laid by the owner, and one deposited by a cuckoo. The cuckoo's egg was of the ordinary brown type, presenting no resemblance to the hedge-sparrow's eggs. On



YOUNG CUCKOO.

June 2 the young cuckoo and two hedge-sparrows were hatched, the third young hedge-sparrow, which had been hatched earlier, having previously disappeared. The next day the two nestling hedge-sparrows were lying dead outside the nest. When one was replaced, no attempt was made to eject it by the cuckoo.

The same result happened when a young wagtail was put into the nest; but when this was replaced by a young wren, the latter was ejected under the eyes of the observer in the usual manner. On June 22 the young cuckoo left the nest.

The following incident, which occurred in Essex in 1905, of a cuckoo placing her egg in a conservatory is of interest. For some days a wagtail's nest had been observed in a conservatory leading out of a drawing-room, when one day a half-grown cuckoo fluttered out; it was caught and replaced in the nest, where its wants were attended to by its foster-parents. The presence of the cuckoo in this nest necessitated considerable courage on the part of the hen bird, as the nest was within a foot of an inside door. Nor is it easy to realise how the cuckoo discovered the nest, as the wagtail's access was at all times through an open skylight.

To show that cuckoos of certain other species have similar breeding-habits reference may be made to a photograph reproduced in the March number of the *Victorian Naturalist* for 1905, which shows a nestling bronze-cuckoo in the act of ejecting the rightful occupant of the nest

in which it was hatched. When discovered, the nest contained two young birds. The cuckoo, blind and featherless, struggling till it got beneath its victim, gradually lifted it to the edge of the nest, resting at intervals, and balancing the nestling in the hollow between the wings immediately at the back of the neck, till it pushed the unfortunate wren over the side. The young wren was replaced in the nest half-a-dozen times, but always with a like result until the cuckoo was thoroughly exhausted.

All the African cuckoos normally lay coloured eggs, but when they lay in nests of species with white eggs, their own eggs are also often white. In the case of the golden cuckoo one author states that a white egg was taken from the oviduct of a female shot on the Crocodile River; a white egg was also found in the nest of a Cape wagtail, which was allowed to hatch to make identity certain; a white egg has also been taken from the nest of the little red-vented tit-babbler. The usual host is the Cape sparrow, the cuckoo's eggs—coloured like those of the sparrow—being often taken from the nests of this bird. There is no information as to whether there are white-egged and colour-egged strains of cuckoos in Africa, or whether the same bird may lay white or coloured eggs according to circumstances.

Of the great spotted cuckoo (*Coccyzus glandarius*) of southern Europe, to which incidental reference has already been made, one example was taken on an island off Galway in March 1842, a second in Yorkshire in August 1870, and a third in Norfolk in October 1896. The bird is distinguishable from the ordinary cuckoo not only by its greatly superior size, but by its crested head, and the white spots on its wings from which it takes its name.

Two other occasional stragglers to the British Islands are the American yellow-billed and black-billed cuckoos (*Coccyzus americanus* and *Coccyzus erythrophthalmus*), both of which differ from the true cuckoo by the absence of dark barrings on the breast, and by the oval, in place of rounded, form of the nostrils; the two species being respectively distinguished by the colour of their beaks. Of the yellow-beaked species nine examples were recorded from the British Islands up to 1900, namely, two from Ireland in 1825 and 1832, one from Cornwall in 1835, and a second in 1887, one from Pembrokeshire in 1832, one near Aberystwyth in 1870, one from Lundy Island in 1874, one from Dorsetshire in 1895, and the ninth from the Isle of Wight in the following year. In addition to these, two examples were recorded in 1901, namely, one from Somersetshire, and the other from Hampshire.

Of the black-billed species apparently only a single British example is known, namely, one killed in Antrim in the autumn of 1871.

Nightjar
(*Caprimulgus*
europæus).

The nightjar, or goatsucker, as (from an old superstition) it is called in many parts of the country, introduces us to a second group of "picarian" birds, which is taken to include also the swifts; the nightjar typifying one family (*Caprimulgidæ*), and the swift a second (*Cypselidæ*). The members of both families are characterised by the shortness of the beak and the great width of the gape; characteristics



MOUNTED IN THE ROWLAND WARD STUDIOS

NIGHTJAR.

which may, however, be merely special adaptations for capturing insects in the air, as is the practice of all these birds.

Among the distinctive characteristics of the nightjar may be mentioned not only the remarkable shortness of the beak and the enormous mouth, fringed on each side by long bristles, but also the partial union of the three front-toes and the comb-like, or serrated, inner edge of the claw of the middle one. These features render the species easily distinguishable from any other British bird; while the peculiar cry from which it takes its name affords equally easy means of recognising it in the field. The colouring of the plumage, which is eminently adapted for rendering the bird inconspicuous in its favourite haunts on chalk or limestone cliffs, is by no means easy of description. It may be said, however, to consist of a blend of dark brown and buff streaks, spots, and bars, with a fine stippling of small

grey dots, so as to produce a kind of powdered effect; this being variegated by certain small white areas, namely, a patch on the side of the neck, a spot in the centre of each of the first three quills of the wing, and the whole of the tips of the tail-feathers. In the female the white markings on the wings and tail are, however, lacking. Young males show all the light markings of the adults of their own sex, but these are tinged with buff; while young females are distinguishable from their maternal parent by the slighter development of the "comb" of the middle claw.

A summer-visitor to the British Islands, the nightjar makes a longer stay than the cuckoo, arriving in May and remaining till September, or even, it is said, a month or so later in the south-western counties of England. Its general distribution is very similar to that of the cuckoo, the summer breeding-range comprising Europe as far north as about latitude 60° in Scandinavia, and thence eastwards through Central Asia about as far as the longitude of Irkutsk in Siberia, while in winter it visits Africa, and south-western Asia, inclusive of the north-western districts of India. Other species of the genus are found over the greater part of the tropical and temperate regions of the globe. Nightjars, which are nowhere very common, range all over the mainland of Great Britain, but are only occasional visitors to the Outer Hebrides, the Shetlands, and Orkney. They are equally widely distributed in Ireland, although less common in the northern and north-western counties than elsewhere. A favourite haunt in the south of England is the bush-clad cliffs on the east side of the Isle of Portland.

These birds associate in pairs, and during the daytime skulk on the ground either amid low vegetation (whence, perhaps, the name fern-owl, by which they are known in many parts of the country), or on the ledges of bare cliffs, where their mottled plumage renders them absolutely invisible, unless perhaps to a very practised eye. With the falling shades of evening their active life commences; and at this time they may be seen flying about their haunts with a noiseless and somewhat heavy flight in search of the insects which form their food; these being taken, at any rate for the most part, while on the wing. Every now and then they desist for a while from flight to rest on some convenient spot, which may be either the bare ground, a stump, a branch, or a rock or stone; and it is during such pauses that the peculiar and characteristic "churr" or "jar" is uttered. Besides this, however, there is a kind of chuckling cry, emitted while on the wing. It is the former and more characteristic cry that gives rise to the local name of churn-owl.

Very characteristic of a nightjar is its habit of crouching longitudinally on a branch, instead of sitting transversely after the fashion of an ordinary perching-bird; and when on the ground these birds invariably squat close down in the same manner as when on a branch. In fact they neither perch nor stand. Although there are certain foreign species without them, there can be little doubt that the bristles bordering the gape of the mouth serve to aid in capturing small insects; but whether the comb-like middle claw is for the purpose of cleansing these bristles, as has been suggested, or has some other use, remains at present uncertain.

The two eggs, which are laid in a hollow on the bare ground or the ledge of a cliff, are coloured for purposes of concealment just as effectively as are the parent birds. Their ground-colour is white or stone, upon which are one series of deep-seated lavender-grey markings, and a more superficial set of light or dark brown ones, which may take the form of either blotches, spots, or streaks. Another peculiarity of the eggs, which average about $1\frac{1}{4}$ inches in length, is their regularly oval form, so that they have neither a small nor a large end. In this respect they resemble those of swifts—a circumstance which may afford an additional argument for associating those birds with nightjars. June and July form the laying-season in England and Ireland, but in the south of France the eggs are often deposited in May. As might have been expected, young nightjars are clothed in down as soon as they make their appearance in the world—this down being greyish, darker above than below.

Of the red-necked nightjar (*Caprimulgus ruficollis*), whose proper home is south-western Europe and the opposite coast of Africa, a single example was taken near Newcastle in 1856. There is also a record of a single British specimen, killed in Nottinghamshire in 1883, of the Egyptian nightjar (*C. aegyptius*), a species whose range extends from Algeria to Baluchistan and Turkestan.

Swift (*Cypselus apus*).

Swifts and swallows have such strong resemblance to one another in general appearance that they are popularly supposed to be closely allied groups. This, however, is not the opinion of the great majority of naturalists, by whom swallows are regarded as a specially modified group of perching-birds, while swifts are believed to be "picarian" birds likewise specially adapted for a particular mode of life. On this view, such resemblances as exist between the two groups are to be accounted for by the similarity in the general mode of existence of their repre-

sentatives. In many structural points the two groups are undoubtedly very unlike ; but it is, nevertheless, a most remarkable circumstance that the bones of the palate are constructed in both swallows and swifts on the same type, and that no other picarian birds display a similar arrangement in this region of the skull. According to the classification here followed, the swifts are placed in the same ordinal group as the nightjars, of which they form a family (Cypselidæ) differing structurally from the Caprimulgidæ in the arrangement of the bones of the palate, and in the possession of distinct blind appendages (cæca) to the intestine.

To point out in detail the resemblances and differences between swifts and other picarian birds on the one hand, and between the former and swallows on the other, will, however, be quite unnecessary on the present occasion, and it will suffice to point out a few of the leading characteristics of the group under consideration. In the air swifts may be recognised at a glance by their remarkable



MOUNTED IN THE ROWLAND WARD STUDIOS

SWIFT.

resemblance in shape to a cross-bow. The short beak is hooked at the tip, and has a very wide gape ; the wings are of great length, with the primary quills unusually large and distinctly curved, but the secondaries very short ; while the feet are small and weak, with the first, or hind toe, more or less reversible, and in the more typical species all four toes capable of being turned forwards. In the skeleton a noticeable feature is the extreme shortness of the humerus, or upper bone of the wing, which is remarkably different from the corresponding bone of the swallow ; the breast-bone, or sternum, also differs from that of the swallow in the absence of any notch on its hind, or lower border, as well as in its great length and the excessive depth of the central keel. Another, but less important, difference between swifts and swallows is the presence of only ten tail-feathers in the former against twelve

in the latter. With the exception of being unknown in the polar regions, swifts are cosmopolitan birds.

The true, or common, swift (*Micropus apus* of some writers and *Apus apus* of others) is the typical representative of the family, and, together with several allied species, is characterised by the feathering of the legs extending down to the toes. In length the swift measures about $6\frac{1}{2}$ inches; in colour both sexes are uniformly sooty brown, with the exception of a small patch on the under surface of the lower jaw, which is whitish. In young birds there is more white on the throat, and the feathers have pale margins—features indicative of the derivation of swifts in general from birds with a more normally coloured plumage.

The swift is a migratory bird, arriving in the British Isles not before the end of April or the beginning of May, and departing as a rule in August, although a few individuals, especially in the southern counties of England, may occasionally linger till September or even later. The great majority of swifts spend the winter in Africa; and the eastern range of the species extends to Afghanistan and Kashmir. Swifts range as far north as Lapland, but do not apparently breed in Scandinavia farther north than latitude 69° or thereabouts, and in the Ural district only up to about latitude 60° . Like swallows, these birds attain the more northern portions of their range very gradually, arriving in the southern parts of Europe as early as March, and advancing across the continent in a wave, so that Lapland is not reached till June. A cold spring, after an interval of genial weather, often plays sad havoc with swifts, many of which are not unfrequently struck down by a "blizzard" in a dead or dying condition. As implied by its name, the swift is a bird of extremely rapid flight, although it is excelled in this respect by the larger Alpine species; and spends the greater part of the day on the wing, but is most active towards evening, when it may be seen dashing high in the air round church-steeple, uttering its loud screaming call. Its food consists entirely of insects, which are taken on the wing. As a rule, swifts seldom voluntarily alight on the ground, from which, however, they are able, although with some difficulty, owing to the length of their wings, to rise directly into the air. When retiring to roost, or for purposes of nesting, they betake themselves to crannies in high buildings or ledges on cliffs, from which they are able at once to precipitate themselves into the air when about to resume their flight. The nest, which may be either under a roof or in a cleft in a tower-wall or the face of a cliff, is a poor structure of straw, grass, feathers, and wool,

held together by saliva from the bird's mouth; and in this are deposited, usually in the early part of June, two, three, or occasionally even four, pure white eggs of an elongated oval shape, with a characteristically rough shell. In due course the young are hatched in a completely naked condition. Swifts migrate southwards in immense flocks; and on their return journey generally revisit their old haunts. Unlike what occurs in swallows, albinism is very rare among these birds, although a white swift was recorded in 1900. It may be added that on the Continent an instance of a swift laying spotted eggs is on record—a circumstance which may afford an argument to those who believe in the affinity between these birds and swallows. In the north of Scotland (as well as in the west of Ireland) swifts only occur irregularly, and the fact of a pair having bred on Lochnagar in 1903 has consequently been regarded as worthy of record.

Alpine Swift
(*Cypselus melba*). Few persons other than ornithologists are aware that England is occasionally visited by a swift of much larger size than the ordinary species, from which it is at once distinguished by the white abdomen. This Alpine, or white-bellied, swift (the *Micropus melba* or *Apus melba* of some writers) measures as much as 9 inches in length, and may thus be distinguished, even when in flight, by this character alone from its smaller relative. The general colour of the upper surface is pale greyish brown, this tint extending on to the sides of the neck and thence across the fore part of the breast, so as to form a conspicuous band when the bird is seen from below during flight; while the flanks and under tail-coverts are likewise similarly coloured; on the other hand, the throat and the remainder of the under-parts are pure white. Young birds show narrow greyish-white edges to the dark feathers.

Europe, as far north as the Alps, together with northern Africa, south-western Asia, the Himalaya, India, and Ceylon come within the ordinary range of this partially migratory species; but a certain number of individuals not uncommonly stray beyond these limits to visit France and Germany, and of these a few extend their wanderings still farther north so as to reach the British Isles, where they have from time to time been observed, chiefly in the south, between the months of June and October inclusive. Between the years 1830 and 1900 about twenty-seven instances of the occurrence of the Alpine swift have been recorded in England. In addition to this there are records of four Irish occurrences up to the same date, the last of which

took place in 1866 ; but there seems to be no instance of the species having been observed in Scotland.

This swift, with the exception of some of the larger species of the needle-tailed swifts, is probably the swiftest and most powerful flyer of all birds. Roosting and nesting on tall cliffs in large companies, it flies

daily enormous distances—in some cases hundreds of miles—in search of food ; but in other respects is very similar in habits to the black-bellied species. Of the needle-tailed swift (*Chætura caudacuta*), whose range extends from Siberia to Australasia, one example was taken in Essex in the summer of 1846, while a second, which was accompanied by its mate, was killed at the same time of year in Hampshire in



MOUNTED IN THE HOWLAND WARD STUDIOS

ALPINE SWIFT.

1879. These birds differ from the true swifts in having the lower part of the leg, which is comparatively long, bare of feathers, and by the shortness of the tail, which is scarcely forked, and largely exceeded in length by the wings. They also agree with most birds in the number of joints in the toes, whereas in the front-toes of the typical swifts these are reduced to three in each.

Roller (*Coracias garrula*).

According to the system here followed, the roller, the bee-eater, the kingfisher, and the hoopoe are included in a single group, of which each represents a separate family ; but for the purpose of the present work it will be unnecessary to give either such characteristics as are common to these and the other representatives of the group, or the distinctive features of the individual families. Rather smaller than a jackdaw, but of more slender build and with a somewhat longer beak and much longer

tail, the roller cannot be mistaken for any other bird to be met with in the British Isles, unless it be its Indian relative, of which one English example is recorded. In length the roller measures about 12 inches: and it is further characterised by its somewhat heavy and slightly arched beak, furnished with large bristles at the gape, which is relatively wide. In both sexes the head and neck are bright greenish blue, the back is chestnut, the upper wing-coverts and the greater part of the tail are dark blue, but the tip of the latter, the greater wing-coverts, the bases of the primary quills, and the whole of the under-parts are pale blue. Young birds may be distinguished from adults by their generally duller tone of colouring.

The roller is a migratory bird, which spends the winter in Africa and breeds in central and southern Europe, Persia, Turkestan, Kashmir and the adjacent parts of Asia, passing through some of the north-western districts of India on its journeys. Although it is probable that few persons have seen this brilliantly coloured bird in the wild state in England, it is far from an uncommon summer



MOUNTED IN THE ROWLAND WARD STUDIOS

ROLLER.

or autumn visitor to the British Isles, where it has probably occurred on something like a hundred different occasions during the time that accurate observations on our bird-fauna have been recorded. As might be expected, most of these occurrences have taken place in the southern counties of England, but several specimens have been taken in the Orkneys and Shetlands, while Ireland claimed ten examples up to 1900, of which two were taken in September and four in October. The lateness of these latter occurrences is somewhat remarkable, seeing that the bird is stated to make its appearance in the south of Europe in April and to depart in August. Despite the brilliance of its plumage, the roller is, however, by no means an exclusively southern species, having bred as far north as St. Petersburg and up to about latitude 60° in Scandinavia; and there is accordingly no reason, so far as climatic conditions are concerned, why it should not nest in England.

The name roller is derived, it appears, from the habit common to all the birds of this genus of falling or tumbling in the air after the fashion of a tumbler-pigeon. All the rollers have a harsh strident cry, well known to residents in India, which may be uttered when they are disturbed or at other times. They fly with a slow, flapping flight, not unlike that of the jackdaw, and feed chiefly upon large insects. Like so many "picarian" birds, they nest in hollow trees, where they lay four or five long white eggs, the shell of which has a gloss comparable to fine porcelain.

Of the Indian roller (*Coracias indica*), which may be recognised by the under surface of the body being only partially blue, an example was shot in Lincolnshire in the autumn of 1883; but the report of the occurrence of two wild individuals of the Abyssinian roller (*C. abyssinicus*) in Scotland is probably based on error.

Bee-eater
(*Merops apiaster*).

Another occasional bright-coloured visitor to our islands from the south is the bee-eater, the type of the family Meropidæ. Bee-eaters, of which there are several kinds, differ from rollers (Coraciidæ) not only in general appearance, but likewise by their longer beak and feebler legs and feet, as well as by the union of the outer and middle toes by a web extending up to their terminal joints. Moreover, whereas the rollers have ten primary quills and twelve tail-feathers, in the bee-eaters these numbers are reversed. The two groups agree, however, in that the sexes are coloured alike, or, at all events, very nearly so; this brilliant-hued plumage being probably a permanent breeding-dress.

In the ordinary bee-eater, which measures about $10\frac{1}{2}$ inches in length, the crown of the head, the neck, the upper portion of the back, and a broad band across the secondary quills of the wing are rich chestnut-brown, in sharp contrast to which are the white of the forehead and the black of the ear-coverts, a space in front of the eyes, and a band across the throat enclosing a yellow centre: the quills are bluish green, the lower part of the back is tawny yellow, the tail green, with black tips to the elongated pair of middle feathers, and the under-parts generally are greenish blue; this brilliant colouring being fitly completed by red eyes. Females are distinguishable by the less bright tints of their plumage, and the somewhat less elongated middle tail-feathers; while young birds may be recognised by a still greater diminution in the length of the latter, the greenish-brown hue of the plumage of the upper-parts, and the absence of the black throat-band.

The geographical distribution of the bee-eater is very similar to

that of the roller, the present species passing the winter in Africa and north-western India, and in spring spreading itself over the south and central districts of Europe, south-western Asia, and Central Asia as far east as Afghanistan and Kashmir. On the other hand, it never apparently breeds so far north in Europe as does the roller, although the British Museum possesses eggs from Sarepta and the Volga valley in southern Russia.

Although only an occasional visitor to the British Islands, where it is met with more frequently in the south of England during spring



MOUNTED IN THE ROWLAND WARD STUDIOS

BEE-EATER (MALE).

than elsewhere, the bee-eater, when it makes its appearance, not unfrequently does so in parties. For instance, so many as twenty are recorded to have been seen together in Norfolk, and eleven or twelve were taken in a single locality in Cornwall on the same day in the year 1828 ; three were shot out of a flock in Somersetshire in the spring of 1869, and the same number out of a party of seven in Cork in April 1878 ; in the autumn of 1892 one was killed out of a flock of six in Wicklow, while three were seen in Pembrokeshire in May 1896, and the same number in Yorkshire in September 1905. These latter, of which one was killed, were exploiting a beehive in a garden. With such records it would be little use attempting to give a list of all the occurrences of the species in the British Islands ; and it will suffice to mention, as indicative of its occasional appearance in the

north of Scotland, that a pair was seen in Caithness in the spring of 1897.

Bee-eaters are confined to the Old World, where the larger kinds, as their name implies, subsist chiefly on bees and wasps, which they seize across the body while in the air, and render harmless either by crushing between the two halves of the beak or by beating against their perch. When on the look-out for food these pretty little birds station themselves on posts, bare branches, or telegraph-wires, whence they dart suddenly on passing bees or wasps, with which they return to their perches to make preparations for a meal. As may be inferred from the foregoing statements in regard to their occurrence in England, they generally live and breed in small companies; excavating long tunnels, with a large terminal chamber to each, in river-banks or cliffs, for the reception of their long glossy white eggs, of which from three to five generally go to a clutch. A low melodious note, which, when once heard, is not likely to be forgotten, is characteristic of these birds.

A single example of the blue-tailed bee-eater (*Merops philippinus*), whose range extends from India and Ceylon to China and the Philippines, is stated to have been taken in the summer of 1862 in Northumberland.

Kingfisher A bird so well known as the kingfisher (the type of
(*Alcedo ispida*). the family Alcedinidæ) scarcely needs anything in
the way of description in a work of the present
nature, its brilliant livery of various shades of azure and green above and of chestnut beneath, coupled with its abbreviated tail, long lance-like black beak marked with a patch of crimson on the lower jaw, and bright red legs and feet, rendering it distinguishable at a glance from every other British bird. Although the two sexes when adult differ but little in plumage, the female is somewhat less brilliant, with more of a greenish tinge than her partner. Young birds, on the other hand, are easily distinguished by their shorter beaks, which lack the red patches on the sides, although their legs are of the same brilliant red as in their parents.

As a family, the kingfishers are distinguished from both rollers and bee-eaters by the oil-gland being tufted (instead of bare), and by the absence of a pair of blind appendages (cæca) to the intestine. They are further characterised by the feeble development of the legs and feet, in the latter of which the outer and middle toes are united for fully half their length, while the middle and inner toes are joined for about a third of their length. There are eleven primary quills to the

wing, of which, however, the first is extremely small ; and, except in the Bornean racket-tailed kingfisher, twelve tail-feathers. The true, or common, kingfisher, together with its immediate relatives, is specially characterised by the extreme shortness of the tail and the presence of four toes to each foot.

The geographical range of the kingfisher is very extensive, embracing most of temperate Europe and the greater part of Asia, inclusive of India, the Malay Archipelago, and Japan ; although these birds are, of course, only to be met with in the neighbourhood of water. There appear, however, to be two distinct races, namely, the typical European bird, which ranges as far east as Baluchistan and Sind, and a smaller form (*Alcedo ispida bengalensis*) inhabiting the rest of south-eastern Asia, intermediate forms connecting the two. The northward range of the kingfisher is, of course, arbitrarily restricted by temperature, as these birds could not possibly exist in districts where the streams are fast bound in ice for a considerable portion of the year. Accordingly, the kingfisher is generally found in southern Scandinavia only as an irregular visitor, and is

quite unknown in the more northern parts of that region ; while in Russia it is but seldom seen even so far north as St. Petersburg. Similarly, these birds become much scarcer in the north of Scotland than is the case farther south ; and while they occur from time to time in Skye during the summer months, in the Outer Hebrides they appear to be unknown. One instance of the breeding of the species in southern Scandinavia is on record. In the more northern parts of Great Britain it seems probable that the kingfishers wend their way southwards at the approach of winter, but over a large portion of England many of these birds are resident throughout the year ; and even those which leave our shores for a warmer climate do not apparently travel farther south than the Mediterranean countries. From many of their old English



MOUNTED IN THE ROWLAND WARD STUDIOS

KINGFISHER.

haunts kingfishers have now more or less completely disappeared ; but they are still to be met with on the upper reaches of the Thames, and there are localities in Norfolk where the sight of a whole family of these birds is far from uncommon in summer.

Water is essential to the existence of kingfishers, which feed almost entirely on fishes, although this diet may be varied by a meal of tadpoles in spring or of insects at any season ; and although they are usually to be found in the neighbourhood of freshwaters, they occasionally betake themselves even in summer to the coast and obtain their food from the sea, as the writer has witnessed in Devonshire. In the breeding-season they of course associate in pairs, but at other times of the year they may be found either in couples or singly ; each pair or individual having its particular territory, from which intruders are relentlessly driven away. A solitary kingfisher sitting either on a post or rail or a bare branch, intently watching the water for a passing fish, is one of the prettiest sights of English river-scenery, only to be exceeded in beauty when the bird makes a sudden plunge into the water, to rise again with a struggling minnow in its beak, or darts up or down stream in search of a fresh station, with wings and body gleaming in the sunlight like an azure meteor. The flight, although strong, swift, and direct, is not generally prolonged, and is usually so low that the bird seems almost to skim the water. A clear whistling note, uttered at frequent intervals, is characteristic of all kingfishers ; and when one bird is driving away an intruder from its domain, the combat is made known by loud screaming cries.

To the old superstition of "halcyon days" during the nesting of the kingfisher no detailed reference is necessary. The laying-season usually commences in May, the pure white eggs, which are usually six or seven in number, although sometimes as many as eight or nine, being deposited in a large chamber at the end of a long tunnel driven by the birds themselves in the bank of a river, pool, or lake, or occasionally in the ground at some distance from water. Fish-bones cast up by the parent birds are generally to be found in the nesting-chamber, and it is commonly stated that the eggs themselves are laid on a heap of debris of this nature. This, however, according to some observers, is an error, and the accumulation of fish-bones around the eggs is accidental rather than intentional. Occasionally, at any rate in Ireland, a second clutch of eggs is laid ; eggs having been taken in July from a hole where a brood had previously been reared.

When inland waters are hard bound in frost, kingfishers are compelled in most cases either to betake themselves to the coast or perish

of hunger ; and there is an instance recorded of one of these birds having been taken in a lobster-pot. As to whether they have ever been caught with a line while spinning, there appears to be no information ; but on several occasions they have been known to perch on the rods of anglers. A white kingfisher appears to be an *ignota* rather than a *rara avis*.

Of the American belted kingfisher (*Ceryle alcyon*), a member of a genus in which the tail is longer than in the typical kingfishers while the two sexes are often somewhat different in colouring, two examples were killed in Leinster during the autumn of 1845. Although not obtained in the same place or at the same time, it has been suggested that both these birds were captive specimens which may have escaped from their cage.

Hoopoe Although familiar enough to residents in southern
(**Upupa epops**). Europe and India, the peculiar flute-like “u-pu-pu”
from which the hoopoe derives both its English and
Latin names is but rarely heard in Great Britain or Ireland, where
this beautiful bird is only an occasional visitor. Its appearances are,
however, perhaps somewhat less infrequent than is commonly supposed.
The hoopoe is the typical representative of a family (*Upupidæ*), the
members of which are confined to the Old World, exclusive of
Australasia. In the absence of a pair of blind appendages (*cæca*) to
the intestine, as well as in the tufted character of the oil-gland, they
resemble kingfishers, from which, however, they are distinguished by
the presence of only a single notch (in place of two) on each side of
the hind, or lower, border of the breast-bone. Hoopoes are further
characterised by the long, curved, and slender beak, the short tongue,
and, above all, by the conspicuous erectile crest on the head, in which
the hindmost feathers are the largest. The number of both primary
wing-quills and tail-feathers is ten.

There is of course no possibility of confounding the hoopoe with
any other British bird, and further description is therefore almost super-
fluous. It may be mentioned, however, that the general colour of both
upper and under parts is cinnamon, the crest being tipped with black
but showing some white between the black and the cinnamon (a feature
distinguishing the species from the Indian *Upupa indica*); transverse
bars of buff, white, and black occupy a considerable portion of the
back ; the wing-quills and tail are black barred with white, the white
on the latter forming a single band in the basal third which extends
downwards towards the tips of the outer feathers ; and the legs are

dusky brown. Hens are somewhat inferior in size to the cocks, with a duller tone of colouring, and a rather shorter crest; while young birds differ from their parents of the corresponding sex by their less elongated beaks. Nestlings are devoid of covering till their feathers are developed.

The breeding-range of the hoopoe includes the Mediterranean countries and Europe as far north as Denmark and the south of Sweden, whence it extends eastward through Central Asia and the Himalaya to China and Japan. In winter these birds visit Africa, Arabia, and India as far south as the Deccan, where they meet the resident Indian species (*U. indica*). A certain number of individuals range considerably farther north than the breeding-area, visiting Spitzbergen, northern

Russia, Norway, and the Färoes; and among these northern stragglers may be included the majority of those visiting the British Isles, although there is evidence of hoopoes having nested in Hampshire, Sussex, and Dorsetshire. Whether all these instances are fully authenticated may perhaps be doubtful, but there can be little hesita-



MOUNTED IN THE ROALAND WARD STUDIOS

HOPOE.

tion in admitting that if these beautiful birds were left undisturbed, they would not unfrequently breed in the south of England. Hoopoes are far less uncommon in England than is commonly supposed, and although generally met with on migration, are occasionally seen in winter. To Scotland they are rarer visitors; but it is noteworthy that a pair was killed in Dumfriesshire in the winter of 1870-71, while a single specimen was shot in Inverness-shire in November 1905. Hoopoes have been seen so far north as the Orkneys, Shetlands, and Outer Hebrides. To Ireland these birds are irregular spring and autumn visitors, which make their appearance most commonly on the coasts of Wexford, Waterford, and Cork.

In their native countries hoopoes chiefly frequent open districts, where they pass much of their time running on the ground in search of

food ; this consists largely of grubs and insects, which are probed for in the soil with the long beak. Occasionally, however, these birds perch on trees ; and in the breeding-season they nest in hollow trunks, laying from four to seven bluish-white eggs. Little in the way of nest-making is effected ; but the nest-hole has invariably a most evil smell, owing to accumulated filth. During incubation the hen sits almost constantly, and is fed by her mate throughout this period. As a rule, the crest is carried folded back flat on the head, but when the bird alights from one of its short flights, or is under the influence of excitement or alarm, the beautiful banded plumes are momentarily erected. When the characteristic note is uttered the sides of the neck are puffed out ; this action being accompanied, it is said, by striking the beak on the ground.

Green Woodpecker With the green woodpecker, or yaffle, we come to the last and typical group of the so-called picarian birds ; (*Geococcyx viridis*). all the members of which, inclusive of both woodpeckers and their relative the wryneck, being classed in the family Picidæ. By the older naturalists all the European woodpeckers were included in the single genus *Picus*, and by some ornithologists the present species is still retained in that genus, under the name of *Picus viridis*. There can, however, be little doubt that the colouring of the plumage is a character of generic value among these birds ; and according to the system here followed the original genus is represented by the great black woodpecker (*Picus martius*), while the yaffle and its immediate relations are referred to a group apart.

Doubtless the marked difference in the colour of the plumage of the green and the spotted, or pied woodpeckers is to be accounted for by differences in the habits of the species ; and it may be noted that whereas the pied species spend most of their time in trees, the green woodpecker is to a great extent a ground-bird. In this we have probably an explanation of the two types of colouring, the one being an adaptation to harmonise with green grass and herbage, while the other is obviously suited to accord with the splashes of bright sunlight and deep shade on tree-stems in summer.

It is time, however, to refer to some of the leading features of the group. Although there are woodpeckers with three toes, the species with which we have here to deal, like the wryneck, have two toes turned permanently forwards and two backwards—a feature distinguishing them from other British birds except the cuckoo. On opening the beak of either a woodpecker or a wryneck, the tongue will be found capable

of being protruded a great distance ;—an arrangement rendered possible by the peculiar structure of its supporting bones, which curl round the back of the skull. It is, however, interesting to note that in a few foreign woodpeckers the structure of the tongue is normal, thus showing that the specialisation in the more typical kinds is a feature which has been evolved in accordance with special needs. Unlike perching-birds, woodpeckers and wrynecks have the oil-gland tufted ; and they are further characterised by having two notches on each side of the lower



MOUNTED IN THE ROWLAND WARD STUDIOS

GREEN WOODPECKER.

or hind border of the breast-bone ; by the absence or rudimentary condition of the pair of blind appendages (cæca) to the intestine ; and by the spinal feather-tract being well defined on the back, on the lower part of which it forms a fork. Although the outermost pair is often short and concealed by the coverts, these birds have twelve tail-feathers. As a rule, the beak is strong and conical, with the upper half

chisel-like in shape, and thus admirably adapted for cutting away the wood of half-rotten tree-trunks.

The typical woodpeckers, constituting the subfamily Picinæ, are characterised by the stiff shafts to their tail-feathers, the tips of which are pressed against the bark of the trees when the birds are climbing or boring. In consequence of the severe usage to which these feathers are subjected, the tail frequently becomes much worn, so that its length varies in different individuals of the same species. When on the wing, these birds may be recognised by their peculiar undulating flight ; and when on trees they nearly always cling to the stem, instead of perching, with the head upwards and the tail closely pressed to the bark. As a rule, they ascend and descend in diagonal lines ; and all the European species drill holes in the stems or boughs for the reception of their pure

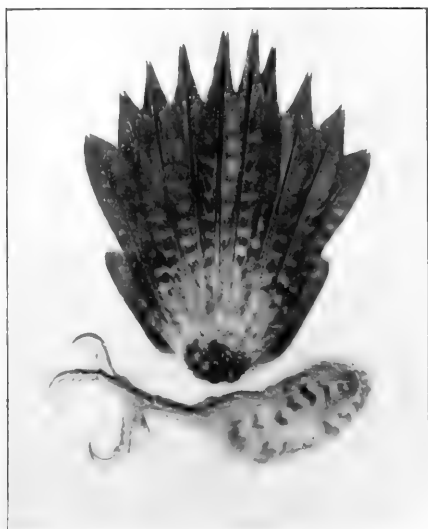
white eggs, which are laid on the chips formed during the process of excavation, without anything in the way of a nest.

Both groups of British woodpeckers are characterised by the presence of feathers concealing the nostrils; the yaffle being, as already mentioned, specially distinguished by the predominance of green in its colouring. In both sexes the upper-parts are mainly olive-green, passing into yellow on the hind region of the back, and the under-parts greyish, and both have the crown of the head and nape of the neck crimson; the cock has, however, in addition, a black-edged crimson cheek-stripe, represented by a black one in the hen, which has also less crimson on the head. Young birds are duller in colour, with dusky mottlings above and arrowhead-markings below.

The yaffle is the typical representative of a large group of species, ranging from Europe across Asia as far east as Java and Sumatra. Its own range is apparently limited to the eastward by the Ural Mountains and the Caucasus range, and farther south by Persia. The Mediterranean marks its extreme southern range, but not everywhere, for the Spanish yaffle is regarded as a distinct species. In Norway this woodpecker is known to breed so far north as latitude 63° , but farther east, where the climate is more severe, the northern breeding-limit is some three degrees less. Throughout its habitat the bird is a permanent resident. Although formerly much commoner, the green woodpecker is now a comparatively scarce bird in many parts of England; but even in the home counties it has still many resorts, and will occasionally make its appearance on the gravel-walks of gardens in search of its favourite ants. More abundant in the south of England than in the Midlands, in Yorkshire these birds become very scarce, and to Scotland they are only occasional visitors. Strange to say, the species is not a native of Ireland, where only three instances of its occurrence were recorded up to 1900; but then, for some still unexplained reason, the whole woodpecker-group (inclusive of the wryneck) is unknown in Ireland except as casual visitors.

In common with other green woodpeckers, the yaffle, as already stated, is seen much more commonly on the ground or on fallen timber than on trees; and as it feeds largely on ants, the reason for this is not far to seek. From this habit the species is more often seen than the spotted woodpeckers, although it may be the least common; and, even when keeping to woods or trees in parks, its presence is revealed by the loud laughing cry from which it takes its name of yaffle. When ants are not procurable, this woodpecker obtains insects, grubs, etc., from beneath the outer bark of trees; and, when engaged in tapping

the stems for cavities, works gradually upwards, supported in part by the closely pressed tail-feathers, keeping always on the opposite side of the stem to that approached by an intruder, although occasionally peering round to see how matters are going. The nest-chamber is



MOUNTED IN THE ROWLAND WARD STUDIOS

TAIL AND FOOT OF GREEN WOODPECKER.

excavated deep into some partially decayed trunk, often at no great distance from the ground, and with a small, nearly circular entrance. Occasionally woodpeckers start to work on a stem too sound to be excavated, and have to give up the task: although the old nest-hole is sometimes used for several years in succession, more commonly a fresh one is made each year. Apparently the female comes out to feed during the brooding-season. The eggs, of which there are usually from five to seven in a clutch, measure $1\frac{1}{4}$ inches or rather more in length, and are commonly laid in May, although sometimes not hatched till well on in June.

After the breeding-season the two members of a pair separate to lead solitary lives. In addition to insects, spiders, and grubs, it is said that these woodpeckers will crack nuts and acorns to feed on their kernels.

**Great Spotted
Woodpecker
(*Dendrocopos*
major).**

As contrasted with the green species, the most obvious distinction of the great spotted woodpecker and its relatives is the pied plumage of the latter—a feature doubtless connected, as already mentioned, with the more completely arboreal life of these birds.

The present species is characterised not only by its large size (length about $9\frac{1}{2}$ inches in males and rather less in females), but also by the white markings being restricted above to the head and wings. On the head the white crosses the forehead, and running round each side of the head forms a large patch on the face, cut off by a narrow black bar from another patch on the side of the neck; the scapulars are wholly white; the wing-quills are chequered with the same on their outer webs; and the under-parts are uniformly white, with the

exception of the hind portion of the abdomen, which is crimson, as is a bar across the nape of the neck. Adult females lack all trace of the crimson bar on the back of the head. On the other hand, in young birds of both sexes the whole crown of the head is red. This feature of young birds is a very remarkable one, and apparently indicates that the species originally had a wholly crimson head at all ages like that of the lesser spotted woodpecker, but that for some reason such a type of colouring was unsuitable, and the red in the adult became reduced to a band on the occiput of the cock. As the red is evidently a specialised feature, we have thus evidence of, first, the development, and then the decadence of this crimson skull-cap.

Although a certain proportion of the British representatives of the species appear to reside permanently in our islands, this woodpecker is to a great extent a migratory bird, and in some seasons a large influx of strangers takes place during the autumn in the eastern and southern counties. Ranging as far as the Arctic Circle in Scandinavia, this species extends eastward across Europe and northern Asia to Amurland, although replaced by another member of the group

in the Himalaya, while there are several local races in Asia. Throughout the southern and midland counties of England the species may be found breeding in suitable localities; but both in Wales and the more northern English counties it becomes scarce, and in Scotland it appears to be chiefly known as a visitor during the winter-months at the present day, although it is stated to have formerly bred in Aberdeenshire, Banffshire, and Inverness-shire. There are, however, records of its breeding in the south of Scotland, Midlothian, and East Lothian in 1901. In some years considerable numbers of this species visit Caithness, Orkney, and Shetland in the autumn and winter, and it has been recorded from



MOUNTED IN THE ROWLAND WARD STUDIOS

GREAT SPOTTED WOODPECKER.

Skye. On the other hand, only some thirty-nine instances of the occurrence of this woodpecker were recorded in Ireland up to the close of last century, most of these having taken place in late autumn or early winter on the eastern coast.

In common with the other pied woodpeckers, this species spends most of its time on trees, where it obtains all its food. An exceedingly shy bird, it has a single-syllabled call-note quite unlike the "laugh" of the yaffle; but in other respects its general habits are those of the rest of its tribe. The eggs, of which there may occasionally be as many as eight in a clutch, are slightly smaller than those of the green woodpecker. A specimen of this bird in which the parts normally black were wholly white was killed in the New Forest in 1873.

Compared with *D. major typicus* from Scandinavia, the British great spotted woodpecker (*Dendrocopus major anglicus*) differs by its smaller size, more slender and less powerful beak, shorter wing, and generally more brownish under surface. Examples from western Germany come, however, close to the English bird, so that it is uncertain whether the latter is restricted to the British Isles.

**Lesser Spotted
Woodpecker
(*Dendrocopus
minor*).**

With a length of not more than half-a-dozen inches, the male lesser spotted woodpecker may be readily distinguished from its larger relative by the retention of the ancestral crimson patch on the whole of the crown of the head, as well as by the presence of a large white area on the middle of the back, separated by a broad black band from the white of the neck: the white markings on the wings have much the same arrangement as in the larger species, but the under-parts are buffish white, streaked with black on the flanks. In the hen the crimson skull-cap is replaced by one of dirty white, and the whole of the under surface shows dark streaks. Young cocks differ from the adults of the same sex by the paler tone of the skull-cap; while young hens have only the fore part of this cap crimson. The partial retention of this ancestral character in the immature female and its complete disappearance in the adult is a feature of special interest.

The species has much the same general distribution as its larger relative, though there is still a certain degree of doubt as to whether some of its Siberian and Central Asiatic representatives should be regarded merely as races or as separate species. In Scandinavia it nests as far north as latitude 70°; and it is noteworthy that while it is rare in the countries of southern Europe, it reappears in Algeria

and the Azores. In England, where it is in some districts considerably the more abundant of the two, this woodpecker has much the same distribution as its larger cousin; but, as might have been expected from its non-migratory habits, it is only a very rare straggler. Much the same may be said with regard to Ireland, where only some six or seven authenticated instances of its occurrence were recorded up to the close of the nineteenth century. There is nothing specially noticeable in the way of habits to be recorded; and it will suffice to say that the eggs, of which there may be from five to eight in a clutch, vary from a little less to a little more than three-quarters of an inch in length.

The British lesser spotted woodpecker (*Dendrocopus minor comminutus*) differs strikingly from the Scandinavian *D. minor typicus* by its much shorter wings and tail. The under surface is always buffish.

Of the Continental *Dendrocopus medius*, the so-called "middle spotted woodpecker," none of the few alleged occurrences in Great Britain appear to be authentic. Much the same may be said with regard to the American hairy woodpecker (*Dendrocopus villosus*), this being especially the case with a pair recorded from

Halifax, which may have been brought from the Nova Scotian city of the same name. Neither can any credit be accorded to the alleged occurrence of a specimen of the American downy woodpecker (*D. pubescens*) in Dorsetshire in 1836, or of the white-backed woodpecker (*D. leuconotus*) in Shetland. A similar remark applies to the case of a fourth American species, the golden-winged woodpecker (*Colaptes auratus*), of which a specimen was reported from Wiltshire in 1836; while none of the numerous asserted occurrences of the great black woodpecker (*Picus martius*) in our islands appear to be genuine. Of the latest of these supposed occurrences, one is mentioned in Herefordshire in 1902, while others were referred to in 1903, but they are all doubtful.

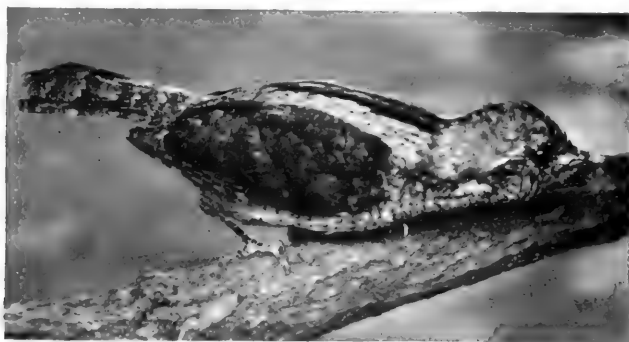


MOUNTED IN THE ROWLAND WARD STUDIOS

LESSER SPOTTED WOODPECKER.

Wryneck
(*Iynx torquilla*).

Wrynecks are mainly an African group of aberrant members of the woodpecker tribe, three out of the four species being confined to the southern continent of the Old World, while the European bird migrates there for the winter, although the eastern representatives of that species find a winter home in India. Differing from the woodpeckers in having tail-feathers of the ordinary soft type, the wryneck, snake-bird, or cuckoo's mate, as it is indifferently called, represents a second subfamily of the Picidae known as the Iynginac. In addition to the soft tail-feathers, the wryneck also differs from the more typical woodpeckers in the open nostrils, which are not overshadowed by feathers, as well as from all members of that group in the colouring of the plumage, which is more



MOUNTED IN THE ROWLAND WARD STUDIOS

WRYNECK (MALE).

like that of a nightjar, and renders its wearer almost invisible on a lichen-clad tree-stem. This departure from either form of the woodpecker type of colouring on the part of the wryneck is probably due to the severally different habits of the two groups of birds, the wryneck seldom ascending tree-trunks in true woodpecker-fashion, but frequenting low isolated trees rather than tall forest-timber, and occupying a nest-hole at no great height above the ground. It may even be found among grass or low brush, in all of which situations the harmony between its colouring and its surroundings is wonderfully close.

In the male the general colour of the upper surface is rufous brown, streaked on the nape, sides of the head, back, and scapular region with brownish black, and finely stippled all over with grey dots, which give a speckled appearance to the feathers; the tail is barred with well-defined dusky lines; the dark brown quills have buff bars on their entire webs; the throat is warm buff narrowly barred with black; and

the breast and flanks are dull white with small blackish-brown spots and bars. The hen, besides being slightly smaller than the cock, which is 7 inches long, is duller in the colour of her plumage. Young birds may be recognised by the somewhat more numerous dark markings on the under surface of the body, the statement in one work to the effect that this surface is white being incorrect.

The wryneck is a migratory species, which derives its name of cuckoo's mate from generally arriving about the same time as the cuckoo, that is to say early in April, although it is said sometimes to make its appearance in March. Indeed, there are isolated instances of the occurrence of the bird in East Anglia in mid-winter. The usual time of departure is September. After crossing the Mediterranean, the wryneck spreads itself over the greater part of Europe, reaching even as far north as the Färoe Islands, and in Scandinavia to about latitude 62°, which seems to mark the extreme limits of its Poleward wanderings. Eastwards the species ranges across Europe and Central and northern Asia apparently to Kamchatka and Japan. In their winter journey European birds visit Senegambia, Kordofan, and the adjacent districts of Africa, but those from Central and eastern Asia resort to the plains of India, Burma, and China. Despite its high Scandinavian range, in the British Isles the wryneck is most common in the southern counties of England, gradually becoming less abundant in the Midlands, till in the north of England, and still more so in Scotland, it must be regarded as quite a rare bird. Nevertheless it has occurred occasionally even so far north as the Orkneys and Shetland. Up to 1900 only six instances of the occurrence of the wryneck in Ireland were recorded, and all took place on islands or near the coast.

The five-syllabled cry of the wryneck is, to use an old-fashioned expression, one of the well-known heralds of spring. To all observant dwellers of the country, this cry is so thoroughly familiar that no description is necessary; and since one writer likens it to the call of a kestrel, while a second compares it to the note of the lesser spotted woodpecker, we will not attempt any such description for the benefit of those to whom the wryneck's cry is unknown. Medium-sized or low trees, bushes, or grass form the favourite resorts of the wryneck, which feeds solely upon insects and more especially ants. A familiar habit of twisting the neck has given rise to the ordinary name of the species; and it is probably to the same peculiarity that the title of snake-bird owes its origin. As already stated, wrynecks occasionally climb tree-stems in woodpecker-fashion. The nest is invariably placed in a hole in a tree, which may or may not be excavated to some

extent by the bird itself, although it is never entirely chiselled out after the manner of the woodpeckers. The pure white eggs, which measure more than half an inch in length, are laid in May on the chips at the bottom of the hole without anything in the shape of a nest; the number in a clutch usually ranging from six to eight, but occasionally reaching half-a-score.

Thrush
(*Turdus musieus*).

The whole of the remaining representatives of the British bird-fauna are included in the great group of perching birds, constituting the order Passeres (or Passeriformes) of ornithologists, so called from the Latin name of the sparrow, the typical member of the entire assemblage. In place of commencing the series with that species, it is, however, preferable to take first the thrush, throistle, or mavis, and its relatives; for this tribe of perching birds, typifying the family Turdidæ, although at one time regarded as the most specialised representative of the group, is really the most generalised, that is to say, the one which comes nearest to the ancestral type.

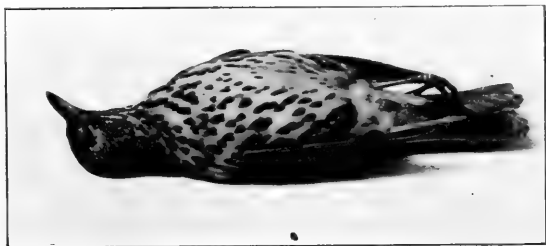
In the case of the British bird-fauna, at any rate, there is very little difficulty in recognising a perching bird, especially when we have eliminated the "picarian" group, of the various representatives of which the leading characteristics have just been given. It may be mentioned, however, that the best definition of a passerine bird is based upon the combined characteristics afforded by the form and mode of arrangement of the bones of the palate of the skull and the relations of the tendons forming the terminations of the deep-seated muscles on the lower surface of the foot. It will be unnecessary here to particularise the structure of the palate; but it may be mentioned that in the foot the hind-toe is served by a single tendon, quite distinct from the one which splits into three branches to supply the three front-toes. Perching birds are represented by more than six thousand species, of which between one hundred and forty and one hundred and fifty have been recorded from the British Isles, although in some cases only on one or two occasions.

The colouring of the interior of the mouths of nestling perching birds offers an almost unknown field of investigation. It has been suggested that the bright-coloured membranous margins of the gape are intended as a guide to the parents in feeding their offspring. In addition to this, the interior of the mouth in most nestlings is bright yellow, occasionally marked with black (hedge-sparrow) or white (bearded titmouse); spots on the tongue and palate, and it seems that

this bright colouring attains its highest development in nestlings reared in deep shade. If this be confirmed, it seems obviously connected with the feeding process.

Here it may be convenient to mention that most of the species of perching birds will be treated more briefly than the members of the preceding groups.

All the British perching birds are very closely related to one another, and in many cases at any rate their separation into "families" must be regarded more as a matter of convenience than anything else, since many of these groups do not differ, for instance, from one another in anything like the same degree as do antelopes from sheep, or the latter from oxen, all of which are included in the single family Bovidæ. Among British perching birds it is noteworthy, however, that the lark tribe (Alaudidæ) is distinguishable from all the rest by the circumstance that the hind surface of



THRUSH.

the shank of the leg is covered by large transverse shield-like scales, instead of being smooth with a division into two lateral halves. The other families are sometimes subdivided into two sections, the larger characterised by having ten and the smaller only nine primary quill-feathers in the wing; but this grouping is not followed here. Among the families with ten primary wing-quills, the members of the thrush tribe (Turdidæ) are collectively characterised by the fact that the first plumage of the nestlings is spotted or mottled; and, secondly, by the nostrils being completely open, and not concealed by hairs or bristles, the latter feature distinguishing them from the fly-catchers. In this sense the family includes not only thrushes and blackbirds, but likewise water-ouzels, chats, redstarts, and hedge-sparrows. The range of the family is almost cosmopolitan, and a large number of the species are migratory.

Although the typical representative of both the family Turdidæ and the subfamily Turdinæ is the mistle-thrush, the characteristics of the latter group may be given under the heading of the present species. In all the members of the Turdinæ the front surface of the shank of the leg is smooth, and bristles are present at the gape of the beak. While many of these birds habitually perch on trees, others spend most of their time on the ground; and their food comprises insects,

snails, slugs, and worms on the one hand, and fruits and berries on the other. All the British members of the group may be included in the typical genus *Turdus*, in which the beak is comparatively narrow, with the bristles at the gape more or less strongly developed: as a rule, there are twelve tail-feathers.

In the typical group, as represented by the thrush and its immediate relatives, the two sexes are alike in colouring, and the axillary feathers and under wing-coverts uniformly coloured. As regards the thrush itself, the general colour of the upper-parts is olive-brown, but the wings are marked with two more or less golden-buff bars formed by the tips of the wing-coverts; the throat, the lower part of the breast, and the abdomen are white, the breast-feathers being tipped with rounded dusky spots; the sides of the head, and the neck and upper portion of the breast are tawny yellow streaked and spotted with dusky; and the axillary feathers are golden buff. Hens are somewhat smaller than cocks—which measure 9 inches in length—and are also somewhat paler in colour. In young birds the feathers of the upper-parts are mottled with buff.

It may be mentioned here that there is some reason for regarding the name *Turdus iliacus* as referable to the present species rather than to the redwing, but even if this be really the case, transposition seems undesirable. Neither is it advisable to separate generically the thrush and redwing from the mistle-thrush under the respective names of *Hylocichla musica* and *H. iliaca*, as is done by some writers.

Breeding throughout the British Isles, with the apparent exception of the Shetlands, the thrush ranges all over Europe and eastwards through northern and Central Asia as far as the Yenesei valley in Siberia. In Scandinavia it may be found some distance within the Arctic Circle, but in the colder climate of Siberia its northern range, like that of so many birds, is somewhat more restricted. A partial migration of thrushes takes place, a certain number of individuals crossing the Mediterranean to winter in North Africa, while those from the north of Europe move southwards; similarly, a certain percentage of British birds cross the Channel, while others arrive from the Continent to take the place of those which have travelled southwards, either within the limits of Great Britain or by crossing the sea.

The habits of the thrush are familiar to all; and we need allude only to its song—heard not unfrequently in winter—to its habit of using stones on which to hammer to pieces the shells of the snails which form so large a portion of its food, and its predilection for strawberries and other fruit in summer. Less well known is the fact

that the cock takes a certain, although minor, share in the duties of incubation. The essential feature of the nest, which is usually placed in a bush or shrub, but sometimes in the branches of a fir-tree, and is built of grass with a small admixture of moss and twigs, is that it is lined with mud, clay, or cow-dung, finished off with a coat of decayed wood. Occasionally, in very dry seasons, the lining may be omitted. The first clutch of from four to six of the well-known black-spotted blue eggs is laid early in spring, and the young are hatched in about thirteen days; at least two broods are produced in a season. Uniformly blue eggs are not very uncommon, and pale-coloured or white examples of the adult bird occasionally occur. To distinguish it from other species, the bird is termed song-thrush.

Mistle-Thrush
(*Turdus*
viscivorus).

The second resident British species of the true or spotted thrushes is the mistle-thrush, or mistletoe-thrush, a species easily distinguished from the song-thrush by its superior size and heavier spotting of the breast. With the exception of the rare White's thrush, the present species is the largest British representative of the group, measuring 11 inches in length. In the cock the colour above is olive-brown, while below it is buffish profusely speckled on the breast with dark fan-shaped spots, and on the throat with arrowhead-markings, the under surface of the wing being white. A slightly paler hue is distinctive of females. In young birds the head is ashy grey, with black tips to the feathers of the crown; the feathers of the back have broad buff-shaped streaks, and dark brown tips, the wing-coverts being similarly streaked but lacking the dark tips; with the exception of the throat, which is white, the under-parts are tinged with fawn, and spotted with black.

With a range very similar to that of the song-thrush, the mistle-thrush is a less common bird in the British Isles than the former. Of late years it has, however, shown a decided increase in numbers, and



MOUNTED IN THE ROWLAND WARD STUDIOS

MISTLE-THRUSH.

has likewise displayed a marked tendency to extend its range into parts of the northern districts of Scotland and the neighbouring isles where it was previously unknown, although the Shetlands appear still to lie outside its limits, while it is rare in the Orkney group. It is recorded to have bred in the Outer Hebrides in 1906, and perhaps a few years earlier. More remarkable is its history in Ireland, where it appears to have been unknown before the nineteenth century, but is now common, resident, and widely distributed. Eastwards its range extends to Lake Baikal, in Siberia, and likewise includes Kashmir and the Himalaya, where the song-thrush is unknown. In the autumn, when these birds collect in family parties, probably composed of the two broods and their parents, the number of British mistle-thrushes is considerably augmented by the arrival of immigrants on the east coast of England.

In place of hedgerows and coppices, which form the favourite haunts of the song-thrush, the mistle-thrush prefers more open resorts, such as parks and orchards; and its habit of singing during stormy weather in the topmost branches of trees has gained for it the name of storm-cock, the song being continued throughout the winter. The nest, generally built in the fork of a tree, is a somewhat rough structure of grass, lichen, moss, and a few twigs, and is lined with mud or clay, inside which is a second lining of fine grass. In Lancashire, however, nests are occasionally built on stone walls. These birds commence to build as early as March, or even the end of February, and lay four or five eggs in a clutch; the ground-colour of these being usually stone-grey, or pinkish cream, upon which are spots and blotches of reddish brown, sometimes inclining to blackish, with underlying light brown or greyish spots. The name mistle-thrush refers, of course, to the partiality of these birds for the berries of the mistletoe, while the less common title of holm-thrush indicates a similar fondness for those of the holly. Pale-coloured or white examples of the mistle-thrush are occasionally seen.

Redwing
(*Turdus illaenus*).

With the redwing (*Hylocichla ilaena* of some writers) we come to the first of two species of spotted thrushes which are normally only winter-visitors to the British Isles, although a few individuals occasionally linger till late spring or early summer. There is, however, no decisive evidence that either of them has ever bred in the United Kingdom; and it will accordingly suffice to say in connection with this part of the subject, that the nests of both are of the same general type as that of the mistle-thrush.

From the song-thrush, with which it agrees very nearly in size,

the redwing may be distinguished by the presence of a broad white streak above each eye, and by the rich orange-red of the flank-feathers and under wing-coverts. The plumage of the female is indistinguishable from that of her partner ; and young birds closely resemble the adults, although recognisable by the feathers of the back and wing-coverts bearing yellowish-white lozenge-shaped spots near the tips. The geographical range of the redwing includes in summer the greater part of northern Europe and Asia, from the Atlantic to the Pacific sea-board. Northwards its breeding-range extends to the Arctic Circle in Scandinavia and to latitude 71° in the Yenesei valley, although not beyond 68° in that of the Petchora. In some of these high northern latitudes the bird breeds indeed beyond the forest-zone, and has therefore perforce to nest on the moss of the tundra. Iceland, the Färoes, and Greenland form the western limits of the breeding-area of the redwing, which is continued southwards to eastern Prussia and Hungary, so that there is no apparent reason why the species should not also breed in Scotland. In winter redwings wander so far south as Turkestan, Persia, and the south of Europe, arriving on the east coast of Great Britain sometimes as early as the latter part of

August, although generally not till two months later, and thence spreading westwards over the whole of the United Kingdom. Their sojourn with us usually terminates in March or April, but may occasionally be prolonged till May. Redwings arrive in huge flocks, and continue in companies throughout the winter-months, usually keeping to open country, and having the general habits of the song-thrush, although they are scarcely ever heard to sing during their sojourn on British soil. The redwing has been known to interbreed with the fieldfare ; and hybrids between other kinds of thrushes have been recorded.



MOUNTED IN THE ROWLAND WARD STUDIOS

REDWING.

Fieldfare
(*Turdus pilaris*).

The second of the two British migratory species of spotted thrushes is the fieldfare, which, like the redwing, usually arrives in October and departs in the following April, although occasionally remaining till May. The species may be recognised at a glance by the grey head and lower part of the back, the chestnut-brown of the rest of the back, and the dark brown wings; the breast being reddish brown with black spots, the abdomen and a streak over the eye white, and the flanks and under tail-coverts

white with greyish-brown and dark brown spots. A duller tone characterises the plumage of the hen. In young birds the head is dark brown instead of grey, the streak above the eye buff, the back dark wood-brown streaked with yellow, and the flank tinged with orange.

The summer-range of the fieldfare is very similar to that of the redwing, but is limited to the eastward apparently by the valley of the Yenesei. In winter these birds travel as far south as Turkestan (occasionally straggling to north-western India), northern Africa, and southern Europe. Over the British Isles (where, as already mentioned, there is no authentic instance of their remaining to breed) they spread themselves gradually westwards in the same fashion as red-



MOUNTED IN THE ROWLAND WARD STUDIOS

FIELDFARE.

wings. In Ireland they are less common than the latter in the south, although the reverse is the case in some of the northern counties. An early winter in Siberia causes an early and large influx of fieldfares into Great Britain, where in such seasons they may arrive in September; and it is commonly believed that unusually large flocks of these birds presage a severe winter. Except in very cold weather, fieldfares are some of the shyest of all thrushes, as they are some of the handsomest. Their arrival in a district is made known by their characteristic harsh call-note, which has been compared to a repetition of the syllable "tsek." Not only do these thrushes associate in large flocks while in this country, but they also breed in colonies within the timber-zone,

although these parties break up when nesting takes place on the treeless tracts of the far north. Both fieldfares and redwings lay bluish-green eggs spotted with chestnut-brown.

Of the American robin, preferably known as the American red-breasted thrush (*Turdus migratorius*), four examples were recorded as British up to the close of last century, namely, one at Dover in 1876, a second near Dublin in 1891, a third near Leicester two years later, and a fourth near Southend in the winter of 1894-5. Although some of these may have escaped from captivity, it is quite probable that one or more may have been wild birds.

Blackbird
(*Turdus merula*).

The blackbird, merle, or ouzel is the type of a large group of unspotted thrush-like birds which differ from the typical spotted thrushes in that the two sexes are unlike in colouring, and that in both the axillary feathers and under wing-coverts are uniformly coloured, or nearly so. On account of this difference the black thrushes (as the group may be collectively designated to distinguish it from the spotted group) are referred by many ornithologists to a genus by themselves, the blackbird thus becoming *Merula vulgaris*, or *Merula merula*. Such refinement of classification, although it may be convenient from some points of view, tends, however, to obscure the close relationship of the blackbird to the thrush, and if any division be required one of subgeneric rank would meet the requirements of the case. If this course were adopted the title of the blackbird would become *Turdus (Merula) merula*.

While the plumage of the adult cock blackbird is glossy black, forming a bold contrast to the yellow beak and eyelids, that of the hen is dull umber-brown, paler on the throat and breast, which are marked with dark streaks; the beak being horn-colour, but inclining to yellow with age. Young birds are blackish brown above, with pale rufous



MOUNTED IN THE ROWLAND WARD STUDIOS

BLACKBIRD (MALE).

spots and streaks, while the under-parts are light rufous brown, with a dark spot to the tip of each feather ; young cocks being distinguishable by their darker colour above and more distinct spotting below. Even after they have assumed the adult black dress, the beak remains dusky till the second year, when it acquires the characteristic yellow.

The geographical range of the blackbird is much more restricted than that of either the song-thrush or the mistle-thrush, extending eastwards apparently only about as far as the valley of the Volga in the north, and Palestine in the south. It includes, however, practically the whole of the rest of Europe as far north as the Arctic Circle, and likewise northern Africa, together with the Azores, Canaries, and Madeira. Blackbirds of other species, it may be added, are found throughout the greater part of Asia, as well as in some of the islands of the South Pacific and in South America, although, strange to say, the group is entirely unrepresented in the northern half of the New World. In view of the distribution of the spotted thrushes, the latter circumstance is very remarkable. With the apparent exception of some of the islands of the Outer Hebrides and Shetland groups, where it is only an occasional autumn and winter visitor, the blackbird is resident throughout the British Isles at the present day, although it seems to have established itself in some of the northern districts of Scotland only within recent years. Like most birds, however, it is partially migratory, and in autumn a considerable number of blackbirds betake themselves from the south of England to the Continent, while others arrive on the eastern coasts from Scandinavia.

With a great fondness for strawberries and raspberries, the blackbird lacks the redeeming feature of the thrush in that it does not destroy slugs and snails. Its flute-like notes in the early part of the breeding-season are unrivalled ; while the loud cries uttered as it flies from a hedgerow when disturbed are equally characteristic of the species.

The nest is of the usual thrush-type ; but the mud or clay with which it is strengthened is confined to the outer portion, the interior being entirely formed of fine grass-bents, and thus very unlike the mud-cup of that of the thrush. The nest may be placed in almost any position within a short distance of the ground—sometimes on the ground itself—and the well-known greenish-blue eggs, thickly speckled with chestnut of variable shades, are laid very early in the spring, and the young hatched towards the end of March or early in April. From four to six eggs go to a clutch ; and, at least, two broods are reared in a season. Occasionally spotless eggs are seen ; and there are others in which the chestnut markings are concentrated in a central zone, or

aggregated at the larger end. Neither are abnormalities in the colour of the plumage at all uncommon ; pied, pale whity-brown, and pure white blackbirds being exhibited in the Natural History branch of the British Museum at South Kensington.

Ring-Ouzel
(*Turdus*
torquatus).

The ring-ouzel holds somewhat the same position in the blackbird group as is occupied by the redwing and fieldfare among the spotted thrushes. Whereas, however, the two latter birds seek British hospitality for the winter, the ring-ouzel is chiefly a spring-visitor to our islands, remaining in some districts to breed, but in other cases passing farther south to reappear for a short stay in autumn. On the other hand, there appears to be satisfactory evidence to show that in some districts, as in parts of Dorsetshire and Herefordshire, as well as in Scotland, a certain number of ring-ouzels remain with us, either occasionally or permanently, throughout the year, while a few sometimes make their appearance only in the winter. Hilly districts, such as the South Downs in the south-east of England, form the exclusive resorts of these handsome blackbirds, whose range includes the whole of the United Kingdom, although in the Shetlands (but not in Orkney) the visits of the species are few and far between. In the south of England ring-ouzels are generally met with only on migration, although there is a report of their having nested in Essex ; but from Hereford northwards they commonly nest on the higher grounds, as they do in all the mountainous districts of Ireland.



RING-OUZEL.

Here it may be well to state that some diversity of view obtains with regard to the systematic position of the ring-ouzel and its relatives among those ornithologists who separate the blackbirds generically from the thrushes. For instance, while in one work the ring-ouzel is placed among the blackbirds¹ with the title *Merula torquata*, in a second the same writer re-transfers it to the original genus *Turdus*, while retaining the true blackbirds in *Merula*.² Perhaps we may

¹ Sharpe, *Handbook to Birds of Great Britain*, vol. i. p. 253 (1897).

² Sharpe, *Hand-List of Birds in British Museum*, vol. iv. p. 140 (1903).

venture to say that such diversities of view serve to strengthen the arguments for retaining thrushes, blackbirds, and ring-ouzel in one and the same genus.

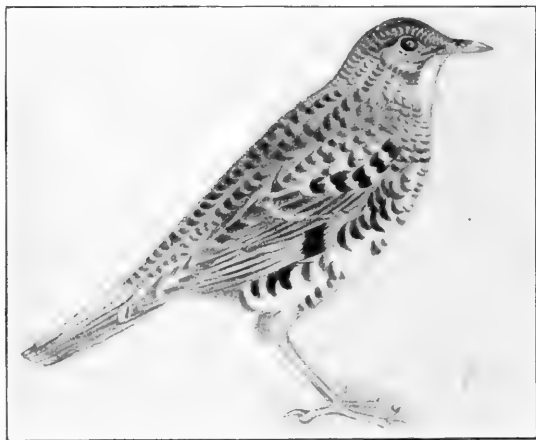
As regards the characteristics of the ring-ouzel, the one distinctive feature is the white gorget, common to both sexes, from which it takes its name; this gorget being, however, narrower in adult females, and but very slightly developed in young birds of that sex. The cock is sooty black, but has grey margins to the feathers of the wing, most conspicuous on the inner secondaries. Hens show a tendency to brown; and young birds are generally stated to resemble that sex, although a young cock in the collection of the British Museum is of a deeper black than the adult. When leaving the nest, young birds have reddish-brown margins to the feathers and white streaks down the wing-coverts, but show no sign of the white gorget, the feathers in that region being black with buff edges, while those of the chest and abdomen are barred with black and buff, and those of the throat buff with black spots.

According to the views of specialists, the ring-ouzel has a very restricted range, which includes only northern Europe in summer, and central and southern Europe in winter; the Alpine and Caucasian ring-ouzel being regarded as distinct species, as is certainly the one (*Turdus castaneus*) inhabiting the Himalaya.

Although ring-ouzel usually migrate in flocks, their general habits are very similar to those of blackbirds, as are also their nests, which are, however, generally built on the ground, but sometimes in holes. In general characters the four or five eggs recall those of the blackbird, but they have a less obscured and clearer blue ground, with bolder and richer markings, and thus approximate to the true thrush type. It may be added that the mottled first plumage of both the present species and the blackbird is indicative of descent from birds allied to the spotted thrushes. The black species may be regarded therefore as specialised representatives of the latter group, perfectly analogous in the matter of colouring to black antelopes and black wild oxen, which are also specialised types derived from ancestral fawn-coloured members of their respective groups, the black in some cases being common to both sexes, as in the ring-ouzel, but in others restricted to the male, as in the blackbird. That the ring-ouzel is the more specialised of the two species is shown not only by the black plumage being common to the two sexes, but also by the early date at which this dress is acquired by the cock. Hybrids between the ring-ouzel and the blackbird are known.

Of the Siberian black-throated thrush, or ouzel (*Turdus atrigularis*), an example was taken alive in Sussex in the year 1868, and a second specimen obtained near Perth in 1879. An equally rare straggler is the Siberian ground-thrush (*Turdus* [*Geocichla*] *sibirica*), a member of a subgenus in which the axillary feathers and under wing-coverts in both sexes are of two colours; the arrangement of these two colours being reversed in the two areas. That is to say, if the axillary feathers are white-tipped, the under wing-coverts will be dark-tipped. Of the Siberian bird, one example was killed in Sussex in the severe winter of 1860-61, while there is considerable reason to believe that a second was obtained in the Isle of Wight in 1874.

White's Thrush (*Turdus varius*). With White's thrush (so named after the historian of Selborne) we come to a species of which a considerable number of stragglers have been taken in the British Isles. The species, which is frequently described as *Oreocichla varia*, belongs to a group which while agreeing with the typical spotted thrushes in the identity in the colouring of the two sexes, differs in that both the axillaries and under wing-coverts are of two colours, with their arrangement reversed in the two areas. The under-parts are spotted, and the bristles at the gape fewer than in the typical thrushes. White's thrush further differs from most other thrushes in having fourteen in place of the usual twelve tail-feathers; but two other members of the same group (which is mainly restricted to the Indo-Australian countries) present the same peculiarity.



WHITE'S THRUSH.

In addition to its fourteen tail-feathers, White's thrush is distinguished by its curiously spotted plumage, and also by its large size, the total length being 12 inches. On a golden-buff ground the feathers of the upper-parts display a number of large crescent-

shaped black spots; the middle wing-coverts are black with large round buff spots at the tips; the greater coverts of the primary quills are buff with broad black tips; the under-parts are white, faintly barred on the throat, and heavily marked on the breast with black spots similar to those on the back; while the under side of the wing shows a large white patch very characteristic of the species.

The chief breeding-resorts of this handsome thrush are situated in the south-eastern districts of Siberia, although the adjacent parts of central Siberia and China north of the valley of the Yangtsi, as well, probably, as Japan, are likewise comprised within the breeding-area. From these countries the species migrates to the south of China and the Philippines, a certain number of individuals straggling westwards across Europe and occasionally reaching the British Isles. In the Himalaya the species is represented by the very similar but smaller-billed mountain-thrush (*Turdus dauma*), which has, however, only twelve tail-feathers, and is resident throughout the year.

The first British record of this thrush was a specimen taken in Hampshire in 1828, which was named *Turdus whitei*, on the assumption that it indicated a new species. Between that date and 1900 twenty-one examples are stated to have been seen or taken in the British Isles, but the record of at least one of these is doubtful. In all the instances where the time of year is recorded, these occurrences took place between September and the early spring. Ireland claims three and Scotland one out of the twenty-two occurrences referred to above. One was shot in Yorkshire in 1902.

A specimen of the Siberian dusky thrush (*Turdus dubius* or *T. fuscatus*) is stated to have been picked up at Gunthorpe, Nottinghamshire, in October 1905.

The rock-thrush (*Monticola saxatilis*, sometimes known as *Petrocincla saxatilis*) is the typical representative of a group of about a dozen species clearly entitled to generic separation from the thrushes and blackbirds, and at one time placed with the chats. The rock-thrushes are ground-haunting, and frequently mountain-dwelling birds, characterised by the prevalence of blue, or blue and chestnut, on the breast of the cocks. In the case of the present species, which is a native of the mountains of central and southern Europe, the head, neck, and upper part of the back of the cock are cobalt and blackish blue, the middle of the back is nearly white, the quills are brown, and the under surface and outer tail-feathers chestnut. Only three instances of the occurrence of this bird in the British Isles were recorded during the nineteenth century, namely, one at Royston in

1843, another in Yorkshire in 1852, and a third in Cheshire in 1890. The second and third instances are, however, by no means free from doubt, so that there is really only one well-authenticated occurrence. The alleged occurrence of the blue thrush (*Monticola*, or *Petrophila*, *cyaneus*) in Ireland in 1866 is incorrect.

Nightingale
(*Daulias lusciniæ*). In the case of such a familiar bird as the nightingale it is great pity that there should be great difference of opinion among ornithologists with regard to its proper scientific name, the difference of opinion extending to both the generic and the specific title. In the older works on British birds the species is described as *Philomela lusciniæ*, and it is much to be regretted that this classic title could not have been retained for such a classic songster. Later on the name *Daulias lusciniæ* was substituted on account of priority; the eastern nightingale being designated *Daulias philomela*. Other writers, on the contrary, preferred to use the generic name *Luscinia* in place of *Daulias*; but a still more drastic change was the substitution of the generic name *Ædon* for each of these, and the transference of the specific name *lusciniæ* from the western to the eastern species; the former thus becoming *Ædon megarhyncha*, and the latter *Ædon lusciniæ*. Without any expression of opinion as to the merits of the case, it seems advisable to retain *Daulias lusciniæ* for the western, and *D. philomela* for the eastern bird.

The nightingale is our first representative of the second subfamily of the thrush group, which also includes the redbreast and redstart, and is known as the Rutilinæ. In their general characters these birds, which are of smaller size than most thrushes, are closely related to the thrushes and blackbirds, and serve to connect the latter with the chat group. All the members of the present group are comparatively long-legged birds, well adapted for running on the ground, where they obtain most of their food, which consists almost entirely of insects and other invertebrate creatures. Unlike the thrush group, they do not go about in parties; and while a large number of the species are migratory, others



MOUNTED IN THE ROWLAND WARD STUDIOS

NIGHTINGALE.

frequent the same districts throughout the year. In many, and more especially the redstart and its relatives, the edges of the feathers become considerably worn as the season advances, thus producing a marked change in the general colour. Although the redstart lays plain blue ones, the eggs of most of the species are spotted; and the nests are very frequently placed in the hollows of trees or rocks. It will thus be seen that for the proper identification of birds of this group we have to be acquainted not only with the plumage of the young, but with the habits of the adults. There is, however, no great difficulty in recognising all the British species.

The nightingale is an excellent instance of the fact that in many cases brilliancy of song is associated with a sombre-coloured plumage; the converse of this being also true in the majority of cases. In both sexes the nightingale is russet-brown above, passing into reddish chestnut on the tail-coverts and tail-feathers, while the under-parts are greyish white, inclining to buff on the breast and flanks. In young birds the general tone of the plumage is darker, the upper surface being spotted with yellowish brown, the wing-coverts tipped with buff, and the lower surface dirty white, mottled on the throat and breast with dusky bars.

Four species of nightingales are recognised, three of which are migratory, while the fourth (*Daulias africanus*) appears to be resident. Of the typical or western nightingale, the range includes the southern part of Great Britain, and central and southern Europe in summer, and west and south-east Africa in winter. The eastern nightingale (*Daulias philomela*), on the other hand, ranges from central and eastern Europe and Sweden to eastern and Central Asia and south-western Siberia in summer, and visits north-east Africa in winter; and the fact of this bird being apparently the true *Muscicapa luscinia* of the Swedish naturalist, Linnaeus, is the justification for the above-mentioned transference of name. The fourth and last species is the Persian nightingale (*Daulias golzii*), ranging from the Caucasus and Persia to Central Asia in summer, and visiting north-western India and equatorial Africa in winter.

In England the nightingale usually makes its appearance about the middle of April, the cocks arriving a few days before their partners. On arrival these birds at once distribute themselves over the wooded districts of the southern, eastern, and midland counties, with the exception of the west of Devonshire and Cornwall, where they are generally reported to be unknown. To Wales they are also practically strangers, although a specimen was recorded from Montgomeryshire

in 1882, and a second from Cardiganshire twelve years later; and there is no record of the occurrence of the species in Ireland. Northwards it is very rare in Cheshire and Lancashire (if, indeed, not unknown in the latter county), although far from uncommon in Yorkshire; but beyond this it is extremely scarce in England, while from Scotland it appears to be absent, at all events as a regular visitor. A noticeable feature in the habits of the species is the fact that in many instances nightingales return year after year to the same localities.

On their first arrival male nightingales, which are the sole songsters, generally sing to a great extent during the day, but when their partners have appeared, and the business of nest-making demands attention, singing does not usually commence till after sunset, and if the weather is fine and warm is frequently continued throughout the night. The nesting-resorts of the nightingale are either bushy banks, the outskirts of woods, or hedgerows. Here the nest, which is made largely of leaves intermixed with grass, and lined with finer grass, fibres, and sometimes hair, is placed on the ground in a well-sheltered situation.

The four or five (rarely six) eggs are laid in May, and hatched in June, when the cocks practically discontinue singing. In colour the eggs are specially modified to harmonise with their surroundings, and from the fact that while in some instances the characteristic superficial bronzy-olive tint is uniformly distributed over the whole shell, and in others is restricted to one end, or forms a zone of spots, it would seem that the modification is not yet fully completed. In these partially olive eggs the rest of the colour is greenish, and as bluish-green specimens (with or without spots) are occasionally found, it seems probable that the eggs were originally very similar to those of the redstart.

Caterpillars form the chief food of the nightingale, but fruits and seeds are eaten in autumn. The song is too well known, and has been too often described to need fuller notice on this occasion.

Of the above-mentioned eastern nightingale, sometimes called the thrush-nightingale (*Daulias philomela*), a specimen was taken in Kent in October 1904, this being apparently the first record of the occurrence of the species in Great Britain.

Redbreast
(*Erithacus*
***rubecula*).**

As the wren has received the familiar prefix of "Jenny," the daw of "Jack," and the pie of "Mag," so the present species has been christened "Robin" redbreast. In this instance, however, robin has become one of the recognised titles of the species, although there

can be no question that redbreast is its proper designation. In the case of birds, like the nightingale and redbreast, which are the only British representatives of their respective genera, it would be superfluous to enumerate the features on which these genera are severally based, especially as these cannot be concisely expressed. It may be mentioned, however, that the redbreast is related to the thrushes and the nightingale by the close similarity in the colouring of the two sexes, although distinguished from both by the brilliant colour of the under-parts, as well as by the colour and mark-



MOUNTED IN THE ROWLAND WARD STUDIOS

REDBREAST.

ings of the eggs. The length of the first primary wing-quill is a characteristic of the redbreast and its immediate relatives, whose collective range extends from Europe across central and northern Asia to Japan. It should be added that the redbreast of the British Isles and the Rhine Provinces has been separated from the bird inhabiting the greater part of the Continent under the name of *Erithacus melophilus*; but if such distinction is well merited it can scarcely be more than of racial value.

Any description of the redbreast in its adult dress would

obviously be superfluous; and it will suffice to mention that the hen is commonly stated to be somewhat duller coloured than her mate, although the difference is not sufficiently marked to enable the sexes to be definitely distinguished. It is, however, a popular error to regard young birds in their first plumage as females. These immature birds have a conspicuously mottled plumage, the pattern on the upper-parts being produced by ochery-buff centres to feathers with an ochery-brown ground-colour and black tips; the under-parts are paler and more sparsely spotted, without any trace of the brick-red on the throat and breast characteristic of the adults. After the first autumn moult the adult dress is assumed, although the "red waistcoat" does not attain its full brilliancy and the middle wing-coverts have golden-buff tips.

The redbreast (in the usual acceptation of the term) ranges and breeds throughout temperate Europe, although met with only locally in the south of Spain. Its representative in the Canaries has been separated as a distinct species, although the rank of a local race might perhaps better express the difference. Eastwards our bird extends to the Urals; but in Siberia, and again in the Caucasus and Persia, its place is taken by other species. In the Outer Hebrides and the Shetlands the redbreast does not ordinarily breed, although it is recorded to have nested in the latter islands in 1901. As is the case with so many resident birds, redbreasts undergo a partial migration, those from the more northern districts coming south, while some of those inhabiting southern Europe cross the Mediterranean.

Nothing in the habits of this bird—unless it be its confiding nature and its winter singing—calls for special notice. The nest, which is made of leaves and moss, neatly lined with rootlets and hair, may be placed in almost any conceivable situation near the ground—sometimes even on a building to which access is obtained through a broken pane of glass. The eggs, which vary in number from five to eight, are very characteristic, having a white or cream-coloured ground, sometimes faintly tinged with pink, upon which are variable markings of brown or reddish brown, and underlying lavender cloudings. Not unfrequently the markings form a cap at the larger end, and pure white specimens are known, although very rare.

The British redbreast (*Erithacus rubecula melophilus*) differs from *E. rubecula typica* of Scandinavia and Germany in the deeper brownish red throat, and the darker and more rufous upper surface; the sides of the body are also darker, and the brown colouring more extended. Although the British redbreast is easily distinguished from the typical north European bird, the redbreast of Teneriffe and Grand Canary (*E. r. superbus*) is somewhat nearer. The deep red throat of the British bird is peculiar.

Bluethroat
(*Cyanecula*
suecica).

As the redbreast derives one of its chief claims to generic distinction from the brilliant red of its throat and chest, so the bluethroat is characterised by the presence in the same region of the colour from which it takes its name. Whether the fact of this difference in the colouring of the breast would alone be sufficient to justify the generic separation of the bluethroat from the redbreast, may possibly be an open question, but any doubt on this point is removed by the circumstance that in the present species the bright colouring is restricted to the cock. Moreover,

in the bluethroat the bristles at the gape of the beak are few and small, whereas in the redbreast they are strongly developed.

The bright ultramarine-blue of the throat and breast, bordered with bands of black, white, and chestnut, and bearing in the centre a large patch of the latter colour, affords an unmistakable means of recognising the male bluethroat. As regards the rest of the plumage in the same sex, a large extent of the upper-parts is clear brown, but the head is marked on each side by a white stripe running from the base of the beak backwards above and behind the eye, and the upper tail-coverts, together with the bases of all the tail-feathers except the middle pair, are bright chestnut, while the remainder of the tail, inclusive of the two middle-feathers, is dark brown: exclusive of the blue area, the under-parts are white with a buffish tinge. In addition to the absence of the blue on the throat and breast, the female differs in having the under-parts creamy white with a dark brown band across the chest; it is noteworthy, however, that in old age birds of this sex show a tendency to develop the blue and chestnut breastplate of their partners. Young birds are like their female parents.

Breeding in the high north, this bluethroat (for there is more than one representative of the group) ranges in summer over the greater part of central and northern Europe and temperate and arctic Asia, while in winter it visits India, China, Burma, and north-east Africa.

During the nineteenth century twenty-one instances of the occurrence of bluethroats in or close to the British Isles were recorded. It is true one of these is doubtful, but this is compensated for by the fact that in one of these cases there were two, and in a second several specimens. All but one of the instances occurred on either the spring or the autumn migration, and the majority took place in the southern and eastern counties of England. One of the specimens was, however, taken at sea off Aberdeen in 1872, and a second on one of the islands of the Outer Hebrides in 1888. There is no record of a bluethroat in Ireland. In addition to the above, a bluethroat was taken at Eastbourne in 1903, and a second near London in the following year. There is no reasonable doubt that the great majority of these specimens are referable to the present species, which is called by one author the Indian, and by another the Arctic bluethroat.

A bluethroat which frequented the neighbourhood of Ventnor from 1865 to 1867 is described, however, as presenting the characteristic colouring of the white-spotted species (*Cyanecula wolff*, *C. leucocyanea*, or *C. cyanecula*), in which the central spot in the blue chest-patch of the cocks is white instead of chestnut. This species inhabits central

Europe in summer, whence it wanders in winter to North Africa, Palestine, Persia, and India. Another specimen of the same species (included in the above list) was taken at Scarborough in 1876, and a third at Dungeness, Kent, in October 1903.

Bluethroats are to a great extent marsh-haunting birds, which take up their abode in willows and other shrubs during the summer; but in Ladak they may be seen by scores in the low hedges bordering the cultivated fields. And most beautiful birds they are when seen in such situations, carolling their redbreast-like song. They lay eggs not unlike those of the nightingale, but with less of the superficial olive coat, and more distinct spots upon a bluish-green ground.

Two examples of the Siberian rubythroat (*Calliope camchatcensis*) are reported to have been seen alive at Westgate-on-Sea in October 1906.

Redstart
(*Ruticilla*
phœnicurus).

Till recently the redstart, or "firedale," was very generally known by the name under which it is here designated, but in some modern works it will be found described as *Phœnicurus phœnicurus*. Since such a change of the generic title involves the substitution of Phœnicurinæ for Ruticillinæ as the designation of the subfamily, the more familiar name is retained. Redstarts, of which there are many species, all confined to the Old World, resemble bluethroats in the marked differences in the colouring of the two sexes, but are distinguished by the greater length of the tail, which is always to a great extent chestnut in colour, and the well-developed bristles at the gape. Their affinity with the chats is displayed by their black legs and uniformly blue eggs.



REDSTART (MALE).

The male redstart may be recognised by the white streak above the eye, the black throat and sides of the face, grey back and wings, chestnut-red tail (with the exception of the two middle-feathers, which are brown); and upper tail-coverts, chestnut breast and under wing-coverts, and buff abdomen. The hen usually lacks the black and white on the head, and is greyish brown above, with the red of the tail duller, and the under-parts pale reddish brown. Occasionally, however, females are stated to resemble their partners in colouring, although

their tints are duller ; if this be so, it indicates that the redstart, like the bluethroat, is tending towards the development of a similar type of brilliant plumage in both sexes. When leaving the nest young redstarts are very like young redbreasts, from which they may, however, be distinguished by the rufous upper tail-coverts and tail-feathers ; they are greyish brown spotted with buff above, and have the breast mottled with yellowish and dusky brown. It should be added that in winter (when it is unknown in this country) the redstart is a much greyer bird, owing to the presence of pale margins to the feathers, which are gradually worn away.

The breeding-range of the redstart includes practically the whole of central and northern Europe up to the Arctic Circle, and extends eastwards to the Yenesei valley in Siberia, while it also embraces the mountains of southern Europe. In autumn redstarts migrate south to pass the winter in Africa, Palestine, and Persia. The species is one of those birds which for some unexplained reason have of late years taken to increase their range in the British Isles, over practically the whole of which they now breed. Up to the year 1852, for instance, only six instances of the occurrence of the redstart in Ireland were known ; but at the present day, although it must still be regarded as a somewhat rare visitor, it is known to nest in at least two localities in County Wicklow, and either one or two in County Tyrone, while the number of visitors appears to be annually increasing. Similarly, it is only of late years that it has taken to breed in Sutherlandshire and Caithness, while in 1901 the first nest of the species was recorded in Shetland, where, as in Orkney, the bird had previously been known only as an occasional straggler. Up to a few years ago, at any rate, the species was unknown in the Outer Hebrides.

In the circumstance that the males arrive a few days earlier in the spring than the females, and also that during the breeding-season the former frequently sing during the night, the habits of the redstart resemble those of the nightingale, although there can be no sort of comparison between the song of the two birds. The habit of constantly vibrating the tail is very characteristic of redstarts, which are much more often seen immediately after their arrival than later on, when they become very shy and retiring. Although they feed very largely on the ground, they also perch on boughs from which they catch insects on the wing in flycatcher-fashion. The clutch of pale blue eggs, usually from five to six, although occasionally as many as eight, is laid in a loosely constructed nest of grass, moss, and a little wool,

lined with feathers and hair, which is usually placed in a chink in an old building or wall, but sometimes in a hole in a tree.

Black Redstart (the *Phaniceus titys* of some authors), whose breeding-range includes southern and central Europe, and does not extend farther north than the lower part of Denmark, should be exclusively a winter-visitor to the British Isles, yet such is the case. The male differs from the cock of the ordinary redstart in that the forehead is black, as well as by the presence of a large white patch on the wing formed by the outer webs of the secondary quills, and also by the bluish-grey upper-parts; the sides of the head and throat are black, and the breast and flanks sooty grey, passing on the abdomen into slaty grey, which gradually lightens towards the posterior end of the body. The hen differs from the corresponding sex in the ordinary redstart by her somewhat darker colour, and by the under wing-coverts being grey instead of buff.



BLACK REDSTART.

Wintering in north-east Africa, this redstart regularly visits the British Isles during the cold season; as might be expected, it is, however, commoner in the southern counties of England than elsewhere, although it appears occasionally in Scotland, as it also does in Iceland and the Färoes. In Ireland its appearances are very irregular, and mainly confined to the coast. A dead specimen was picked up in Orkney in November 1905. The black redstart is much more of a domestic bird than its cousin, generally taking up its quarters near dwellings, and displaying many of the traits of the redbreast.

Wheatear (The wheatear, which is the typical representative of a genus with nearly fifty species, ranging over the greater part of the Old World (exclusive of the Malay countries and Australasia), and also occurring in Greenland, eastern North America, and Alaska, takes its name from a corruption of a term signifying "white-rump." The species may, indeed, be recognised at all ages by the white upper tail-coverts and

tail, the terminal portion of the tail-feathers being, however, crossed by a black bar, while the white of their basal portion is interrupted by the central pair, which are wholly black. In the adult male in spring the upper-parts are mainly pearl-grey and the under-parts white; from the gape of the beak to the eye, and thence backwards, runs a black stripe, expanding into an oval patch on the ear-coverts, and above the stripe a narrow black line, while the wings are black. The hen differs, so far as colour is concerned, by the absence of the black head-stripe, and the brownish upper and buffish under parts. After the autumn moult the feathers of the cock are broadly margined with



WHEATEAR (MALE).

brown, thus concealing the black on the sides of the head, and rendering the bird almost indistinguishable from the hen; and, as in the case of the redstart, it is by the wearing away of the dull outer margins of the feathers that the full glories of the breeding-plumage are revealed. Young birds are light greyish tinged with brown above, and have brown tips to the white upper tail-coverts; the tail-feathers, as in adult cocks, being also tipped with brown, while the secondary quills carry broad brown margins; after the autumn moult these immature birds become still more like the adult females.

The wheatear is, however, not only the typical representative of its genus, but it likewise typifies the group of chats constituting the sub-family Saxicolinæ. Structurally these birds come very close to the redstart group (*Ruticillinæ*), and their chief claim to distinction appears to be based on their more flycatcher-like habits, all these birds habitually perching on twigs, shrubs, rails, stones, or clods, from which they make periodical sallies to capture their insect-prey on the wing. Frequent jerking and spreading of the tail is very characteristic of the chats; and seasonal change in the colour of the plumage owing to the wearing away of the margins of the feathers is a feature common to this and the redstart group. As a rule, the sexes differ markedly in colour; and a further resemblance to the redstarts is presented by the black legs, but, on the other hand, the tail is never red, and the beak is longer. The majority of the species are migratory, sometimes, as in the present case, to a very marked degree. They are, to a great degree, inhabitants of open and more or less

desert countries. The geographical range of the wheatear is very extensive, reaching in summer throughout central and northern Europe and Asia across Bering Strait to Alaska, and also including the elevated tracts of southern Europe. Moreover, some of these birds, after passing over Iceland and the Shetlands, find suitable breeding-grounds on the Greenland coast. In winter, wheatears seek the genial climate of northern Africa, Persia, the lower Himalaya, and the plains of India. To the British Isles the species is mainly a summer-visitor, arriving in March or April and departing in September or October. In the southern and midland counties these birds nest chiefly on downs and other uplands, but in the north their breeding-stations are more widely distributed, and include the Shetlands and Orkneys. The individuals which arrive in April are larger and browner than the early comers, and it is the former which pass on to breed in the Färoes and Greenland; they are regarded as a distinct race (*S. ænanthe leucorrhous*). Open country is essential to wheatears, so that the distribution of these birds in England is necessarily very local. Occasionally, both in England and Ireland, wheatears are seen in winter. Before departing they collect in large flocks on the coasts. Although their main food is insects, they also eat the small snails found so abundantly on many parts of the South Downs. The nest, which is loosely made of dry grass, with a lining of hair and feathers, may be built in a mere hollow in the grass of the Downs, in a rabbit-burrow, a stone-heap, a chink in a stone wall, or even an empty provision-tin. In this is laid a clutch of from five to seven pale blue eggs, occasionally showing faint purplish dots; a second clutch being laid later in the season. A wheatear with the head and neck partially white, and the tips of some of the wing-coverts wholly so, was shot in Sussex in 1905.

Of the isabelline wheatear (*Saxicola isabellinus*), which breeds in northern Russia, Asia Minor, and Palestine, and winters in north-eastern Africa and north-west India, a specimen was killed in Cumberland in the autumn of 1887. The species is very like the female of the ordinary wheatear, but has a longer shank to the leg, and a broader white lining to the wing-quills.

A second species, the black-eared wheatear (*Saxicola stapazina*), of which there is an eastern and a western race, occasionally straggles to the south of England. The cock of the typical race may be recognised by the rufous sandy colour of the head and back, and the jet black under side of the wing and axillary feathers. This eastern race commonly breeds in Greece and Palestine. The one known British

example was shot near Pett, Sussex, in the autumn of 1905. Of the western race (*S. stapazina caterinæ*), which breeds in Spain and Algeria, one specimen was killed near Polegate in Sussex in the spring of 1902, and a second in the same county in May 1905. In this race (sometimes named *S. albicollis caterinæ*) the under side of the primary and secondary quills is light-coloured.

The black-throated wheatear (*S. occidentalis*), of the Mediterranean countries, is known in this country by one specimen killed in Lancashire in May 1875, a second at Lydd, Kent, in the corresponding month of 1906, and a third in Fair Isle in 1907.

An equally rare straggler to the British Isles is the desert-wheatear, or desert-chat (*Saxicola deserti*), which breeds in northern Africa, Palestine, Arabia, and Persia, and winters in Baluchistan and north-western India. Of this species one example was recorded from Clackmannanshire in November 1880, a second from Yorkshire in October 1885, a third from Arbroath in December 1887, and a fourth at Pentland Skerries in June 1906.

Whinchat
(**Pratineola**
rubetrus).

In the older works on British birds (as in a few modern ones) the whinchat and stonechat will be found included in the genus *Saxicola*. Since, however, these birds differ from the wheatear group by the broader beak and more numerous and stouter bristles at the gape, they are best referred to a group by themselves. The male whinchat, or furzechat, in summer-dress has the feathers of the upper-parts very dark brown, approaching black, margined with bright sandy buff; there is one white streak above the eye, and a second running backwards from near the gape to terminate on the neck; the wing has a conspicuous white patch formed by the inner coverts, and there is a similar patch on the primary quills, formed by the greater coverts, which are tipped with black; the tail is white at the base and dark brown at the tip; while the throat and breast are light fawn, gradually passing towards the abdomen into buff. In autumn all the colours become much less bright. The hen lacks the white upper tail-coverts and has a smaller wing-patch, while the eye-stripe is buff, the upper-parts being pale-coloured and distinctly streaked. In young birds the feathers of the upper-parts are dark brown with triangular buff spots.

The whinchat is the typical representative of an exclusively Old World genus (not extending east of Celebes) with about a score of species. The summer-range of the whinchat itself includes the greater

part of Europe, extending northwards to the Arctic Circle and eastwards to the Urals or the valley of the Obi ; but in the south of Europe such individuals as do not move northwards take to the mountains. In winter the species finds a congenial home in Africa. In the south of England whinchats—whose whereabouts are revealed by the characteristic “ u-tick ” note—make their appearance about the middle of April, and a fortnight or so later have distributed themselves all over Great Britain. Nests have been taken at least as far north as Inverness-shire ; but the statement that the species visits Orkney and Shetland appears to be unauthenticated. To Ireland the whinchat is a local and somewhat scarce visitor, although it breeds locally in the counties of Wicklow and Dublin. It sometimes arrives as early as March. The time of departure is usually September, but it may be delayed till October.

Moorlands, furze-covered commons, and arable lands out of cultivation are the favourite resorts of the whinchat, which may, however, be seen in early spring in meadows. Its general habits are very similar to those of the stonechat, but in Ireland it does not frequent upland gorse, as is the practice of the latter bird. Like the wheatear, the whinchat rears two broods in a year ; but it lays only four or five eggs in a clutch, these being greenish blue with faint reddish spots, sometimes forming a zone at the larger end, where they become more conspicuous. Although the nest is sometimes built in short grass, it is generally constructed beneath a furze-bush, and approached by a tunnel of a foot or more in length, so that it can only be found by carefully watching the movements of the hen bird. Dry grass, with a little moss and straw, forms the main structure of the nest, which is lined with fine bents and hair.

In reference to the former rarity of the whinchat in the Shetlands, it may be mentioned that in 1907 these birds were seen in considerable numbers on the double passage in Fair Isle, while a male was taken in Shetland in 1898.



MOUNTED IN THE ROWLAND WARD STUDIOS

WHINCHAT (MALE).

Stonechat
(*Pratincola*
rubicola).

One of the handsomest of the smaller British birds is undoubtedly a cock stonechat, especially when seen perched on a furze-bush uttering its well-known harsh cry of "u-taek, u-taek." Why, however, the species should be called the stonechat, when it is even a more constant frequenter of gorse-clad commons and heaths than its cousin the whinchat, is one of those puzzles in nomenclature to which no satisfactory solution can be given.

Although the stonechat presents in many respects a very close



MOUNTED IN THE ROWLAND WARD STUDIOS

STONECHAT (MALE AND FEMALE).

resemblance to the whinchat, the cock in summer is readily distinguished by its black head, throat, and upper-parts, the feathers of the back having, however, brown margins, while the upper tail-coverts are white, with black spots, and there is a white patch on each side of the neck, and another on the wing formed by the inner greater coverts of the secondaries; the breast is bright rufous, gradually becoming paler towards the abdomen. After the autumn moult the feathers of the lower surface are paler, while the black of the head and back is obscured by the brown margins of the feathers, which subsequently disappear by wear. The hen may be distinguished from the female whinchat by the absence of a buff eye-stripe, the black throat, and darker and duller upper-parts, and also by the circumstance that the

small first primary quill is longer. Young birds differ in colour from adult females merely by the buffish-white throat, and the reddish-brown edges of the feathers of the upper surface.

Unlike the whinchat, the present species is to a great extent a permanent denizen of the British Isles, but a certain percentage of individuals wend their way southwards in winter. Although local, the bird is found all over the British mainland, but does not breed in either Orkney or Shetland. On the Continent its northern range is very limited, not extending beyond the south of Sweden, while its eastward boundary is marked approximately by the Volga; southwards it breeds even in the warmest parts of Spain. The migratory contingent visits Africa in winter.

To every one conversant with the gorse-commons and heathy districts of England the habits of the stonechat are too familiar to need description. The nest, although somewhat coarser in structure, is placed in situations similar to those mentioned under the heading of the whinchat, and is therefore equally difficult to discover. The four to six bluish-green eggs have larger and more distinct reddish-brown spots than those of the whinchat.

Of the eastern stonechat (*Pratincola maurus*), ranging from eastern Europe through Siberia to Japan, and distinguished by the wholly white upper tail-coverts and black axillaries, an example was killed in Norfolk in September 1904. Another straggler represented by a solitary specimen, taken in Northamptonshire in 1901, is the American bluebird (*Sialia sialis*).

Hedge-Sparrow
(*Accentor*
modularis).

The humble little bird, so familiar round our dwelling-houses throughout the year, and universally known as the hedge-sparrow, is referred by some ornithologists to a distinct family, but is best regarded as the representative of a subfamily (*Accentorinæ*) of the thrush tribe. The attempt to replace its vernacular title by "hedge-accentor" has deservedly failed; and it also seems unnecessary to separate this bird from the genus *Accentor*, as typified by Asiatic species, under the title of *Tharraleus modularis*, as has been proposed. The members of the hedge-sparrow group differ from the other representatives of the thrush tribe in that the front surface of the shank of the leg is covered with large transverse shield-like scales instead of with a continuous smooth plate. On the other hand, these birds resemble robins and nightingales in having bristles at the gape of the mouth (although somewhat poorly developed), and in the spotted plumage of the young.

They are to a great extent ground-dwelling birds, laying unspotted blue eggs. In the more typical Asiatic representatives of the group the wings are long and pointed, whereas in the hedge-sparrow and its immediate relatives they are shorter and more rounded; the former, too, are almost exclusively mountain-birds.

Although possessing no very striking features, the hedge-sparrow, which measures $5\frac{1}{2}$ inches in length, may be easily recognised by the following description, if indeed there are any persons who are not already fully acquainted with the species. The head, neck, and fore part of the neck are dark slaty grey, this colour being, however,



MOUNTED IN THE ROWLAND WARD STUDIOS

HEDGE-SPARROW.

obscured on the crown and nape by large dark brown spots; dark brown, with blotches of a still deeper shade of the same, is the prevailing colour of the back, but the lower part of the latter, together with the tail, is uniformly dark brown; the wing-coverts are dusky with broad wood-brown edges; the abdomen is greyish

white; and the sides and flanks are pale reddish brown with darker streaks. Hens are smaller and duller, with more spotting on the head and back; and young birds are still more spotted, and show no grey on the head and neck.

So far as its breeding-range is concerned, the hedge-sparrow is an exclusively European bird, its eastern limit being formed by the Urals. Throughout the greater part of Europe it breeds everywhere; but it is a somewhat delicate species, and in Scandinavia does not nest to the northward of latitude 70° , while in Russia its limit is some ten degrees less. For the same reason hedge-sparrows do not build in Orkney, Shetland, and some of the islands of the Hebrides group, although they visit them all in winter. Neither does this somewhat fastidious bird nest where the climate is very hot, and in the south of Europe it consequently breeds only in the mountains, thus reverting to the habits

of the typical Asiatic representatives of its genus. In winter a large number of hedge-sparrows perform a migration of greater or smaller length, some resorting to the Mediterranean countries, and others passing through Palestine to visit Arabia.

To dilate on the habits of this bird, which is as well known in our gardens as the redbreast, would surely be superfluous. It will suffice therefore to state that the species subsists entirely on insects and other invertebrate creatures; and that the nest, which is usually built in a hedge or shrub, and is constructed mainly of moss, contains at the proper season a clutch of from four to six of the well-known blue eggs. It may be added that the hedge-sparrow is one of the few British birds which sing throughout the winter months.

The Alpine hedge-sparrow (*Accentor alpinus*), which belongs to the typical group of the genus, characterised by the long and pointed wings, is too rare a straggler to our islands to claim a definite place in the British list. It is a native of the mountain ranges of central and southern Europe and south-eastern Asia. As regards its characteristics, it will perhaps suffice to state that the bird is about an inch longer than the hedge-sparrow, that is, $6\frac{3}{4}$ inches in length; and that while the general tone of the plumage is of the hedge-sparrow type, there is a large admixture of white, notably on the cheeks and throat, where it forms a large patch marked with numerous black spots; this patch, coupled with the scaling of the front of the leg, affording ample means of identifying the species.

Fifteen instances of the occurrence of this species in Great Britain were recorded during the nineteenth century, most of these having taken place in the southern counties of England, although one relates to Snowdon. In three cases two birds were seen in company. Another specimen was shot in Cornwall in November 1906. It may be added that the species is sometimes called *Accentor collaris*, in allusion to the black-spotted white throat-patch.

Spotted Flycatcher The flycatchers, forming the family Muscicapidæ,
(*Muscicapa* have been regarded as intimately connected with
 griseola). the thrush tribe by means of the chats and redstarts.
This presumed relationship is exhibited by the fact
that young flycatchers are more or less fully spotted, and also by the
presence of numerous and strongly developed bristles at the gape of
the beak in both the young and the adults. On the other hand,
flycatchers are peculiar in possessing a number of hairs growing from
the forehead, and extending over the nostrils, which they more or less

completely conceal. They likewise differ from the thrush tribe by their feeble legs and feet, which are unfitted for walking on the ground, and by the broader and flatter beak; and although both these features are adaptations to the mode of life of these birds, they are now regarded as indicative of affinity with the swallows. It may be added that the front of the leg is smooth, as in thrushes and redstarts, and not scaled, as in the hedge-sparrow. Flycatchers, which are entirely confined to the Old World, pass practically the whole of their time on trees (or other perches) and in the air, seldom descending to the ground. Their insect-prey is captured either during short flights



MOUNTED IN THE ROWLAND WARD STUDIOS

SPOTTED FLYCATCHERS (MALE AND FEMALE).

from the twigs on which they perch, or by running along the boughs of trees. Some are migratory and others resident, but none has a song which is really melodious, and the majority are almost silent birds.

The typical representative of the group is the spotted flycatcher, in which the two sexes are alike in colour, and the eggs are spotted.

In this bird the general hue of the upper surface is ashy brown, the crown of the head being, however, streaked with darker brown, while the greater wing-coverts and the outer webs of the secondary quills have narrow borders of buffish white; the under-parts being dull white with inconspicuous brown streaks on the throat, breast, and flanks. Young birds are very distinctly spotted, the feathers of the upper surface being dark brown, each with a pale yellowish central spot.

The spotted flycatcher is a member of a group of the genus very strongly represented in Africa. Its own range includes the greater part of Europe, as far north as Tromsø and Archangel, and thence extends eastwards to Persia, Turkestan, and Siberia, where it is believed to terminate about longitude 110. In winter these birds migrate to north-western India and Africa, travelling for long distances down

the two sides of the later continent. To Great Britain (and northern Europe generally) the species is a very late visitor, not making its appearance as a rule till well into May, when most of the summer migrants are already busy at the work of incubation. Although generally distributed, these flycatchers are less common in Scotland than in the southern and midland counties of England, while to the Orkneys and Shetlands they are only casual stragglers. In Ireland the species, although somewhat local, breeds in every county.

The title of spotted flycatcher, it may be remarked, is not a very satisfactory one, since it refers only to the plumage of the young, which is more profusely spotted than in other British flycatchers. The habits of the species are those of the group in general; but this particular flycatcher resorts much to the neighbourhood of dwellings, not unfrequently nesting in verandas or creepers on house walls. Iron fences, rails, or bare branches form its favourite perches, whence it sallies after passing insects in a characteristic manner, following them in their rapid turns of flight until they are captured. Beetles form a considerable portion of its food, and the wing-cases and other indigestible parts of these insects are cast up in the form of small hard pellets. When insects are scarce, a flycatcher has been observed to seize and swallow a worm from the ground; and in Scandinavia these birds have been known to eat berries of the mountain-ash. While perching, the bird utters a characteristic call-note, like the sound produced by knocking two stones together. The nest, which is always placed in a sheltered situation—sometimes a fissure in the rough bark of a tree—is made of moss and grass, lined with hair and rootlets, and is made externally to correspond with its surroundings by means of pieces of lichen and cobweb. The eggs, four to six in a clutch, vary in ground-colour from cream to pale green, upon which are numerous spots and blotches of reddish brown, with underlying markings of grey; the markings sometimes almost concealing the ground, but in other cases being aggregated at the larger end. Despite the lateness of its arrival, this flycatcher has been known to lay and hatch a second clutch of eggs in the original nest. September is the usual month for departure, but very occasionally, at any rate in Ireland, an individual may remain till October.

Pied Flycatcher A rarer and more local bird in Britain than the last, the pied flycatcher, on account of the marked difference in the plumage of the two sexes and the uniformly coloured eggs, is frequently made the type of a distinct genus, under the name of *Ficedula atricapilla*.

(*Muscicapa atricapilla*).

The cock is a handsome bird, with the upper-parts mostly black, although the forehead is white, as is a conspicuous patch on the wing formed by the greater wing-coverts and secondary quills, while there is a mottled band of grey and white across the lower part of the back, and the outer tail-feathers show more or less white, the under-parts being wholly white. In the hen, on the other hand, there is no white on the forehead, and the colour of the upper-parts is olive-brown, excepting the tips of the greater wing-coverts and narrow outer margins to the secondary quills, which are white; the under-parts being buffish, shading into white on the abdomen. Young birds are mottled on the back as in the spotted flycatcher, but the cocks show almost as much white

on the wings as the adults; in both sexes the under-parts are streaked with dusky loop-shaped marks.



Mounted in the Rowland Ward Studios

PIED FLYCATCHER (MALE).

Arriving from its African winter-haunts in April, the pied flycatcher spreads over Europe to a line about as far north as latitude 69° in Scandinavia, but gradually declining to 60° in the Urals, while eastwards it extends into Asia about as far as the valley of the Obi. The breeding-range includes, however, North Africa; and this being so, it is decidedly remarkable that in Great Britain

it should nest chiefly in the midland and northern counties of England and Wales, rather than in the south, where it is mainly known on migration. In Scotland, on the other hand, it is a rare bird, although it is known to have nested in Inverness-shire and Dumfriesshire, while it has been seen in other northern counties, and has even been known to visit the Orkneys. To Ireland it is merely an accidental visitor on the coasts during migration, the first specimen having been taken in 1875, between which date and the end of the nineteenth century only half-a-dozen other examples were recorded, these being taken on island lighthouses during the autumn-migration.

The distribution of the pied flycatcher is somewhat peculiar, for wherever it is reported to have bred occasionally in the southern counties and midlands, it apparently chiefly affects elevated and deeply wooded valleys where old timber abounds, although it is by

no means restricted to localities of this description. It is locally common in some parts of Wales, Yorkshire, and Westmoreland, but farther north becomes scarcer. In Scotland, for instance, it but seldom breeds; while in Ireland it does so still more rarely.

With the same general habits as the spotted species, this flycatcher in England resorts to open country rather than gardens and the vicinity of dwelling-houses. Like the former, when insect-food fails it will eat worms and berries. Both kinds have a short and feeble song, that of the spotted flycatcher being seldom heard, while that of the present species is compared to the trill of the redstart. From four to eight pale blue eggs, rather smaller and with thinner shells than those of a hedge-sparrow, are laid in a nest mainly composed of grass, leaves, and feathers, and generally placed in a hole in a tree-stem, but occasionally in a chink of a rock or stone-wall.

On account of the shortness of the first primary quill, which is much inferior in length to the fifth, coupled with the slight development of the bristles at the gape—generally only about half-a-dozen in number—the red-breasted flycatcher (*Muscicapa parva*) is frequently associated with a small group of Himalayan species under the name of *Siphia parva*. A summer-visitor to central and eastern Europe, and wintering in India, this flycatcher was only recorded on about a dozen occasions (twice in pairs) as a straggler to the British Isles during the nineteenth century. Most of these visits were to the southern and eastern coasts of England, but one, which may be doubtful, was to Berwick-on-Tweed, while four occurred in Ireland. Several specimens have been taken or seen since 1900. As in the pied-flycatcher, the two sexes are unlike in colour; the cock, in addition to the above-mentioned structural features, may be recognised by the bright chestnut of the chin, throat, and breast, followed by white on the rest of the lower parts, tinged, however, with buff on the sides. In the female, on the other hand, the whole of the under-parts is dull white, tinged with tawny grey on the breast and flanks. Both sexes are brownish above, tending to greyish in the cock, especially on the face, which is mainly grey.

Swallow The proper serial position of the swallows and
(*Hirundo rustica*). martins, constituting the family Hirundinidæ, is a matter on which scarcely any two naturalists are agreed; the fact being that they are very different from all other perching-birds, as is specially indicated by the forking of the spinal feather-tract on the back. They present, however, certain similarities

of habit to some of the flycatchers, and are accordingly associated with that group. It should be understood, however, that some of the resemblances they show to the Muscicapidæ in the matter of structure may be due to adaptation to a particular mode of life, and not to affinity.

From both the thrush (*Turdidæ*) and flycatcher (*Muscicapidæ*) tribe, swallows and martins differ by having nine in place of ten primary quills; but this difference need not apparently be regarded as one of any great importance. The tail has twelve feathers; the front



MOUNTED IN THE ROALAND WARD STUDIOS

SWALLOW.

of the shank of the leg is nearly smooth; and the beak is very short and wide, with a gape extending backwards nearly to the line of the eyes; while the legs are extremely short and weak. Both sexes are alike in the matter of plumage, of which there is only one moult (in spring); bristles at the gape of the beak are but feebly developed; and the young in first plumage are not spotted. In moulting only before their arrival in the British Isles the *Hirundinidæ* are unlike all other migratory birds. Their song is a series of low twittering notes.

With the exception of New Zealand (where, however, an occasional wanderer from Australia makes its appearance), swallows and martins

are practically cosmopolitan birds, wandering in summer far into the Polar regions. They all have great power of flight, and in the colder parts of the temperate regions are strictly migratory, making their appearance, as a rule, in the spring and departing in the autumn. In the tropics, however, there are resident species. All capture their food, consisting of small insects, in the air during flight.

The swallow is the typical representative of a genus whose geographical distribution is coextensive with that of the family. The shank of the leg and the toes are bare of feathers, the plumage of the upper-parts is, wholly or in part, steely blue, and the tail is generally (as in the present species) deeply forked, with a notch on the inner borders of the pair of long outer feathers. All the species

make nests of mud lined with feathers, but the eggs may be either spotted or wholly white.

In addition to the deeply forked tail, the distinctive characteristics of the swallow are to be found in the chestnut forehead and throat, the large white spot on each tail-feather, the continuation of the steely blue of the back in a band across the breast, and the buff of the remainder of the under-parts, except the chestnut tail-coverts. In females the forking of the tail is not so marked, there is less chestnut on the head, and the lower surface is paler. In young birds the metallic sheen of the upper-parts is wanting, the forehead and throat are pale chestnut, and the tail-spots have a reddish tinge. Wintering in Africa and India, the swallow in summer ranges over the greater part of Europe and Asia as far east as the valley of the Yenesei, its breeding-range including the Himalaya. In the British Isles swallows are found everywhere, but breed less commonly in the extreme north than elsewhere; as a rule they appear in April and take their departure in October and November, the young birds outstaying their parents. It has been ascertained that it takes one hundred and five days for swallows to complete their migration throughout Europe, that is to say, from Gibraltar in the south to Lapland in the north, the young being fully fledged in the former locality by the time the old birds have reached the latter. Even in central Europe the period of arrival may, however, last as long as seventy days, the time that the species spends in that part of the Continent averaging one hundred and sixty-seven days.

The general habits of the swallow need no description. In this country, at any rate, the mud-walled and feather-lined nest is generally placed on a beam or cross-tie between the rafters of a roof; but instances are now and then recorded of swallows making their nests in trees, and strange situations are occasionally selected as building-sites. From four to six is the usual number of eggs in a clutch; these having a creamy or porcelain white ground, upon which are reddish or purplish brown spots, with underlying spots of violet. Considerable individual variation in relative length is noticeable. Pure white or pied examples of the swallow are comparatively common, but a specimen from Kildare, Ireland, exhibited in the Natural History Museum, presents a much more unusual type. Although this bird has the pink eyes of a true albino, the plumage, instead of being pure white, is a very pale greyish drab, darker where the feathers of a normal specimen are darkest; indeed, the only pure white areas are the spots on the tail-feathers which show conspicuously on the

pale drab ground. The whole plumage presents a pearly lustre of great delicacy.

It is a matter for regret that, owing to wholesale captures on the Continent, the number of swallows visiting the British Isles has of late years shown a very considerable diminution. Swallows have been known on several occasions to perch on fishing-rods when in use, and they have also at times been hooked by fly-fishers. Stranger still is the fact that these birds have on more than one occasion been hit by cricket or golf balls; two instances, one in 1849 or 1850 and the other in 1894, of the former nature, and one, in 1891, of the latter being on record.

A specimen of the red-rumped swallow (*Hirundo rufula*), a species visiting the south of France and common in North Africa, was picked up on Fair Island in June 1906.

Sand-Martin
(*Cotile riparia*).

The sand-martin (*Clivicola riparia* of some ornithological works, and *Riparia riparia* of others) typifies a cosmopolitan group occupying to some extent an

intermediate position between the swallows on the one hand and the martins on the other. In all sand-martins except the present species (in which there is a small tuft of feathers on the hind surface of the leg) the shank of the leg and the toes are bare; the tail is but slightly forked, without white patches at the tips of its feathers; and the colour of the plumage of the upper-parts is dull slaty brown.

In addition to the features mentioned above, most of which are common to the whole group of sand-martins, the present species is dis-



Mounted in the Zoological Ward at Zoon

SAND-MARTIN FLYING.

tinguished from other British *Hirundinidæ* by its small size, the total length not exceeding 5 inches. The general colour is ashy brown, darker on the crown of the head but lighter on the lower part of the neck, the brown extending in the form of a band across the chest; the under-parts are wholly white. In the female the dark chest-band is somewhat narrower; and in young birds the feathers of the dark area have dull white tips, while those of the under-parts are tinged with buff.

The sand-martin ranges over practically the whole of the northern hemisphere, breeding in Europe from the extreme north of Scandinavia, and from about latitude 50° in the Ural range southwards to the Mediterranean, but in Asia not usually south of the Himalaya. To India and Tenasserim, as well as to Africa and Central and South America, it is mainly a summer-visitor, but since specimens have been taken in the first-named country in May and June, it probably sometimes stays there to breed. In the British Isles, where it arrives somewhat later and departs rather earlier than the swallow, it breeds everywhere in localities suited to its habits, the proximity of water being essential. Occasionally sand-martins stay much longer than the normal season, instances of their breeding as late as September in 1904 and October in 1901 being recorded, while in the former year specimens were seen at Eastbourne and Scarborough in December.

Sand-martins associate in large companies, and breed in holes tunnelled in sandy banks near water; the breeding-tunnel being frequently as much as a yard in length, and terminating in a chamber, carpeted with a little grass and straw, upon which are a few feathers for the reception of the clutch of four or five pure white eggs. Failing banks, these birds have been known to nest in holes in walls, or even in heaps of sawdust. In autumn, sand-martins collect in huge flocks, after the fashion of the other members of the group, previous to taking their departure for the south.



MOUNTED IN THE ROWLAND WARD STUDIOS

SAND-MARTIN.

Martin
(*Chelidon urbica*).

The martin, or house-martin, as it is often called, is the typical representative of a small genus, all the members of which are confined to the Old World. From the swallows and sand-martins these birds are easily distinguished by the complete feathering of the legs and feet, and likewise by the broad white band across the loins, which forms a conspicuous feature when they are flying below the level of the eyes of the spectator. In the present species the tail is forked to a considerable depth, although not nearly to the same extent as in the swallow, but in one of the Himalayan members of the group it is

squared. The plumage of the upper-parts is of the steely blue-black type characteristic of the swallows, but there are no white spots on the tail-feathers.



Mounted in the Howland Ward Studios

MARTIN.

As there is only one British representative of the group, little need be added to the above general description. It may be mentioned, however, that the bird is considerably larger than the sand-martin; that the two sexes are alike in colouring; and that in young birds the colour is sooty brown above, with but little gloss, the white loin-patch being, however, fully developed.

Wintering in Africa, and to some extent in India (where it also occasionally nests), the martin arrives in England in the middle or later part of April, and normally remains till September or October, although laggards may occasionally be seen in the two following months. Eastward the martin extends as far as Turkestan, while to the northward it breeds in the Hebrides, Orkneys, and Shetland, as well as throughout the greater part of Scandinavia, where, however, it becomes scarce in the northern districts. Young martins have been seen in the nest so late as October 11, and it is stated that they are commonly found in this condition at Scarborough in September.

Like the swallow, but unlike the sand-martin, the present species has altered its original habits in order to adapt itself to a life in the neighbourhood of human habitations and outbuildings. Formerly, no doubt, martins always built their cleverly constructed mud-nests

on the scarped faces of cliffs, as did swallows in caverns; and there are places where both species still follow the ancient fashion. At the present day, however, martins generally construct their nurseries under the overhanging eaves of houses, stables, or other buildings; but it is noteworthy that for many years past they have completely deserted numerous buildings where their nests were once common, this being doubtless due to the great slaughter of these birds which now takes place on the Continent. The well-known semi-globular nest is constructed of small pellets of mud collected by the parent birds on the margins of rivers, ponds, or wayside pools, and cleverly pressed together. Entrance and egress are effected through a round hole in the upper edge; and inside the globe of mud is lined with grass and a few feathers, upon which is deposited the clutch of from four to six white eggs, easily distinguishable from those of the sand-martin by the glossiness of their shells. Such an excellent domicile as a martin's nest affords an irresistible attraction to the aggressive sparrow, who frequently expels the rightful owner and takes up his own quarters in the mud dwelling-place. It is said, indeed, that the surest way to secure the presence of martins about a house is to kill off the sparrows.

Whitethroat
(*Sylvia cinerea*).

With the whitethroat (*Sylvia sylvia* of some naturalists), which forms the type of the group commonly known among ornithologists as warblers, we revert to birds with ten primary quill-feathers to the wing. Although the warblers, constituting the family Sylviidæ, differ from the members of the thrush-type, in that the first plumage of the young is like that of the adult female, only brighter, in place of being spotted, there can be little doubt that thrushes and warblers are related groups. Indeed, it has been proposed to include both in the family Turdidæ. This is, however, perhaps going rather too far, although it must be confessed that, apart from the difference in the plumage of the young, it is not easy to define the distinctive characteristics of the two groups. Warblers are, however, smaller birds than thrushes, and in the British representatives of the group, at all events, the front surface of the shank of the leg shows more or less clear indications of being divided into large transverse scales, in place of being wholly smooth. As a rule, the beak is weak and slender, with a small notch near the tip of the upper half, and there are frequently bristles at the gape; these bristles may, however, be wanting, while the beak may be broad and flat and devoid of a notch. A distinctive feature of the group is to be found in the

circumstance that the nostrils are clear of the line of the forehead ; the tail may have either ten or twelve feathers, although the latter number obtains in all the British species ; and there is a spring and an autumn moult, the former of which may, however, be incomplete. The group is confined to the Old World, and a large number of its representatives are migratory.

Much stress has been laid on the fact that warblers differ from thrushes by the absence of spotting in the young. The circumstance is not, however, one of any great importance from a systematic point of view, but is merely evidence that the warblers are the more specialised of the two groups. In the adults of both the original spotted dress has been lost, and in the warblers the same thing has occurred in the young, which have assumed a plumage similar to that of their parents.



MOUNTED IN THE ROWLAND WARD STUDIOS

WHITETHROAT (MALE).

From the foregoing observations it will be manifest that practice, rather than reliance on definition, affords the surest means of recognising the members of the warbler group.

The whitethroat typifies a genus in which the beak is comparatively slender, with a rounded upper surface, and its lower half paler at the base

than elsewhere ; the small first primary quill of the wing is considerably less than half the length of the second ; the feathers of the axillary region may be white, grey, or brown, but are never yellow ; there are only three well-developed bristles on each side of the gape of the beak ; and the beak itself, from gape to tip, is shorter than the middle front-toe, inclusive of the claw.

The whitethroat itself is of the size of a hedge-sparrow, that is to say, $5\frac{1}{2}$ inches in length, and may be recognised by the generally smoky grey hue of the upper-parts, the chestnut margins of the wing-coverts and secondary quills, and the white under-parts, tinged on the breast with purplish, darker on the flanks, and becoming brownish white on the abdomen. A further aid to the identification of the species is afforded by the circumstance that the first, or "bastard," primary wing-quill is not larger than the feathers of the greater wing-coverts. The hen is duller-coloured, without the purplish tinge on the

breast, and with the head of the same greyish brown as the beak, instead of ashy grey, as in the cock. In young birds the general colour of the upper-parts is browner, while the under surface is sandy buff.

The range of the whitethroat includes all temperate Europe, and extends eastwards into Persia; in winter these birds visit Africa, and occasionally occur in India, apparently on the autumn-migration. In the south of Europe the species is met with chiefly on migration; the breeding-range extends to about latitude 65° in Scandinavia, but shows the usual southern trend when the Urals are reached. Arriving in April, whitethroats spread themselves all over the British Islands, but are rare in the north of Scotland, and only occasional visitors to the Outer Hebrides and the other northern islands. They depart southwards towards the latter part of September.

In common with its smaller cousin and some of the other warblers, the whitethroat is locally known as hay-tit, or hay-bird, and also by the name of nettle-creeper. The males often perch on rails or bare boughs, from which they dart after insects in flycatcher-fashion, but the females keep more in covert. In summer these birds feed almost entirely on insects, especially "daddy-longlegs," but they will also eat green peas, and in autumn subsist largely on berries. The nest, which is a slight but deep structure of bents and grass lined with rootlets and hair, is generally placed in bushes or hedges near the ground, or in banks of nettles, but has been found as high as 12 feet above the ground. From four to six eggs go to a clutch; but these vary so much in colouring that description is difficult. Their general tone is, however, olive, due to the prevalence of olive-brown speckling upon a brownish-white ground, but there are also conspicuous underlying spots of violet-grey, generally more abundant at the larger end.

Lesser Whitethroat A rather smaller bird than the last, the lesser white-throat may be distinguished by the absence of chestnut margins to the wing-feathers, and also by the fact of the first primary quill exceeding the greater wing-coverts in length; the white under-parts are also tinged on the breast (except in winter) with rose-pink, and the flanks with buff. Hens are slightly smaller and duller than their partners; and young birds are distinguishable from their female parents by the presence of somewhat conspicuous pale edges to the feathers of the wings. The pearly white eye of the fully adult (two years and after) bird is a conspicuous feature.

The general summer-range of the lesser whitethroat is very similar

to that of its cousin, extending northwards of the Arctic Circle within the limits of the forest-zone, but bounded to the east by Asia Minor and Palestine. In winter some individuals sojourn in the south of Spain, but the majority migrate to Africa, where, however, they remain in the northern provinces, instead of travelling by the Nile valley route to the south of the continent like the true whitethroat. In the British Islands the species has a more restricted range than the latter, being scarce in the northern counties of England, and still more so in Scotland, where, however, it has been known to breed locally. To the northern



SHOT IN THE HOLLAND WARE STUDIOS

LESSER WHITETHROAT.

islands it is only a rare straggler, but it was observed in Orkney on the autumn-migration in 1893 and 1896. Up to the end of last century only two instances, one in 1890 and the other nine years later, of the occurrence of this warbler in Ireland were recorded; both instances being during the autumn-migration, when the birds were taken at lighthouses.

Arriving somewhat later than the whitethroat, this species is a shy, retiring bird, much less in evidence than the latter, but otherwise with nearly the same habits, although it is oftener seen on trees. The nest, too, although shallower, is very similar in

structure to that of the larger species, and is placed in similar situations; while the number of eggs in a clutch (four to six) is also the same in the two species. The general type of colouring of the eggs likewise approximates to that of the whitethroat; but in the present species the ground-colour is porcelain-white, upon which are greenish or pale brown spots, and underlying violet-grey blotches and spots arranged in a ring round the larger end. In addition to a feeble and monotonous song, the lesser whitethroat, like other warblers, utters when alarmed a loud, grating note.

The barred warbler (*Sylvia nisoria*), which takes its name from the barring of the plumage of both the upper and under parts, and is distinguished from all other members of the group by having both

upper and under tail-coverts barred, is a native of southern and central Europe, which visits Africa in winter, and crosses Asia Minor on migration. It is merely a casual visitor to the British Islands during the autumn-migration, only nineteen instances of its occurrence being recorded up to the year 1900; the first some time previous to 1879, and the rest during the last twenty years of the century. Of these occurrences England claims the majority, mostly from the eastern counties, Ireland having two; one bird was killed in Skye, and another example taken in the Hebrides in 1900. Five specimens were recorded during the first seven years of the present century, thus bringing the number up to twenty-four.

Considerable doubt has been expressed as to occurrences in Great Britain of the Orpheus, or Orphean warbler (*Sylvia orpheus*), a central and south European species, wintering in Africa and India, the Indian race being, however, often separated as *S. jerdoni*. It is a larger bird than the whitethroat, rivalling in size the blackcap, from which it is distinguishable at all seasons by the white, in place of grey, throat. One of a pair is stated to have been killed in Yorkshire in 1849, and a young specimen was captured alive in Middlesex in 1866; but doubts have been expressed as to whether either of these instances gives a claim to the inclusion of this species in the list of British stragglers. The alleged nesting of this warbler in England on one occasion is almost certainly based on error. In 1903 an undoubtedly wild example of the species was, however, taken in Sussex, while a second one was picked up dead in the same county two years later.

Of another south European member of the present group, commonly known as the sub-alpine warbler (*Sylvia subalpina*), a single example was taken, curiously enough, in the summer of 1894 in St. Kilda, where it had probably been driven by a violent gale.

Blackcap With the familiar and easily recognised blackcap, we
(*Sylvia atricapilla*). revert to the consideration of regular summer-visitors to the British Islands, where, however, the present species is occasionally seen during the winter. The black crown of the head serves to distinguish the adult male blackcap from all other warblers except the Orpheus warbler, in which, as already stated, the throat is white instead of grey; but another important characteristic of the species is the circumstance that the first primary quill is a fraction longer than the overlying coverts. The upper-parts of the cock, exclusive of the skull-cap, are light olive-brown passing into grey towards the tail-coverts, while the under-parts are mainly ashy white. In the

hen, whose size slightly exceeds that of her mate, the skull-cap is rufous and the general tone of the plumage brown. Young birds are at first coloured like their female parents, but the cocks assume the black cap during their first autumn, though its full depth of tone is somewhat blurred by brownish tips to the feathers.

Ranging apparently about as far eastward as the Obi valley, the blackcap is to be found during summer throughout the greater part of Europe; its northern limit in Scandinavia being, as with so many other migrants, about latitude 66°, while in the heart of the Continent it is somewhat lower. Farther to the south the eastern range of the blackcap includes Asia Minor and Persia; while northern and north-



MOUNTED IN THE ROWLAND WARD STUDIOS

BLACKCAP.

western Africa form the winter-home of this charming songster. In the British Islands the blackcap makes its appearance late in April or early in May, and is then to be found in greater or less abundance all over England and Wales. In Scotland, however, it becomes gradually rarer as the Tweed is left farther behind, and in the northern counties is only an occasional visitor, although one which at times extends its wanderings to the Shet-

lands and Orkneys. To Ireland it is a somewhat local visitor, seen in most districts, although of late years its numbers have shown a decided increase; it is remarkable that the occurrence of blackcaps during the winter in Ireland is comparatively common.

To those fortunate individuals capable of recognising the notes of the numerous British songsters the arrival of the blackcap is a welcome event, as its melody is considered to rival that of the nightingale, while it has the advantage of being more sustained and continuous. The male blackcap is, indeed, a most energetic and untiring songster, continuing, it is stated, its melody even when engaged in its share of the work of incubation. Nest-building occupies the attention of each pair immediately on their arrival in England, and hard-set eggs have been found early in May. Those desirous of encouraging these birds must beware of disturbing their nest, as it takes but little to make them

forsake their nursery, even when incubation is well advanced. Like other warblers, blackcaps depend in autumn largely upon berries for their food, and wholly so when they linger till winter. Dry grass mingled with some moss forms the main element in the nest, which is sparsely lined with hair, and may be decorated externally with spiders' web. Bushes or other thick covert, or sometimes the lower branches of trees growing amid underwood, form the general nesting-site. As usual among warblers, from four to six is the number of eggs in a clutch; but these are so variable in colouring and marking as to defy description within our available limits, although it may be stated that various shades of olive and olive-brown are the prevailing tints in the ordinary type, the markings taking the form of blotches and smears.

Garden-Warbler The garden-warbler is a bird somewhat unfortunate (Sylvia hortensis). In the matter of names. In the first place, it has no more claim to the distinctive title of "garden" (*hortensis*) than has the whitethroat or the blackcap; and, secondly, by many writers the long-established title of *Sylvia hortensis* has been discarded in favour of *S. salicaria* or *S. simplex*. The last of these, which has apparently the right of priority, is the one now generally employed, but it is even more unsatisfactory than the familiar *hortensis*.

Without any very obvious distinctive mark, the garden-warbler, which is a soberly coloured bird, agrees with the whitethroat in having the first primary quill shorter than the overlying covert. The present species (of which the two sexes are alike in colouring) is distinguished, however, by the general uniform olive-brown upper-parts, the presence of a buff eyebrow-stripe, and a buff tinge on the throat, sides of the breast, and flanks, contrasting sharply with the pure white of the middle of the breast and the whole of the abdomen. Immediately after the autumn-moult the colours are brighter than at other times, the upper-parts being russet-brown, while a reddish tinge suffuses the buff of the under-parts, thereby rendering the contrast with the white area



MOUNTED IN THE ROWLAND WARD STUDIOS

GARDEN-WARBLER.

all the more marked. Young birds are like their parents in autumn. The breeding-range of the garden-warbler reaches farther north than that of the whitethroat, extending to latitude 70° in Scandinavia and about five degrees less in central Russia. Possibly this may be connected with the fact that the species arrives in Europe later than the whitethroat, not reaching England till May, and departing in September. Eastwards the summer-range includes the Caucasus, Syria, and north-western Persia, and thence northwards to the Tomsk district of western Siberia, that is to say, approximately 85° east longitude. In winter the species visits Africa, journeying as far south as Cape Colony. Its distribution in the British Islands is decidedly local. It is stated, for instance, not to breed in the west of Cornwall; and in Wales, while rare in Pembroke and the neighbouring counties, it becomes much commoner farther north, in Cardiganshire. On the other hand, in Scotland, where it is common in the Solway Firth district, it appears to be mainly restricted, at least as a breeding-species, to the southern counties, although during the spring and autumn migrations it has been found as far north even as the Shetlands. To Ireland it is a comparatively rare and local visitor, but is either more common than formerly or has been more generally recognised by observers.

In common with some of the other warblers this species is known on the Continent as *beccafico*, a name implying that it supplements the ordinary insect-diet with the juicy contents of ripe figs when in season. In general habits it is very similar to the blackcap; and while some writers consider its song, which generally ceases in June, inferior to that of the latter, in the latest work on the birds of that country the species is stated to be the sweetest songster in Ireland. The alarm-note has been compared to a clock being slowly wound up. Although in some districts the two are found together, in others blackcaps and garden-warblers are stated to be respectively confined to particular localities. Four or five is the usual number^s of eggs in a clutch, these being of the blackcap-type, but with somewhat coarser and more pronounced markings.

Dartford Warbler
(*Sylvia undata*).

On account of its relatively longer tail, which extends beyond the closed wings, the Dartford warbler, despite its marked similarity to a whitethroat (a similarity also obtaining in the case of the eggs), has been made the type of a distinct genus, under the name of *Melizophilus undatus*. The separation from the typical warblers seems, however, scarcely necessary.

The species, which takes its name from having been first identified

as a British bird on the evidence of a Kentish specimen, may be recognised when adult by the dark leaden grey of the upper, and the rufous chestnut of the lower surface, as well as by the white margins and tips of the two outer feathers of the relatively long and fan-shaped tail, and the pale edges of the secondary quills of the dark brown wings. It is, however, important to bear in mind that in autumn the breast-feathers become streaked and spotted with white. The hen, which is slightly smaller than the cock, shows a tinge of brown above and is less distinctly chestnut below. In both sexes the eyes and eyelids are orange-yellow. Young birds are still browner than the hens, slightly mottled above with buff, and tinged on the breast with the latter colour, while the flanks are brown.

Unlike all the members of the group hitherto noticed, the Dartford warbler, as well as its near relative the Sardinian warbler (*Sylvia melanocephala*), is to a great extent a resident species, its permanent range extending from Italy, through France, to Spain, and thence northward to England, where it is chiefly found on the heather and gorse commons of the southern and eastern counties. Its migratory range includes, however, Egypt and Syria. In England it is very rare in the midland and northern counties (although it has been recorded from Yorkshire), and it is entirely unknown in both Ireland and Scotland.

An example of the Sardinian warbler (*S. melanocephala*, or *S. sarda*) was taken near Hastings in 1907.

For the greater part of the year the Dartford warbler conceals itself in the furze or heather, and it is only during the winter months that it makes its appearance in the open country. Two unusually hard winters in the 'eighties are stated to have caused the extermination of the species in several parts of Hampshire and Dorsetshire where it was previously common. The nest, which in Sussex and Kent is placed deep down in a furze-bush, has been described as very like that of a whitethroat, but smaller and constructed of sprays of



DARTFORD WARBLER.

furze, moss, bents, and spiders' web, so loosely put together as to be translucent when held up to the light. The four or five eggs are greenish white, heavily blotched and spotted with dark olive-brown, and with underlying grey markings.

The Mediterranean countries are the home of two nearly allied warblers of rather large size, which represent a genus by themselves, one of these, the rufous warbler (*Ædon*¹ *galactodes* or *Agrobates galactodes*) having been taken on four occasions in the British Islands during the nineteenth century. It is characterised by the long tail and feet, the cinnamon colouring of the upper and the sandy brown hue of the under parts, as well as by the circumstance that the bristles at the gape form a horizontal row, without any smaller additional ones. In its native countries the bird haunts semi-desert districts, with scattered cactuses and shrubs. Of the four specimens above referred to, one was taken in Sussex in 1854, two occurred in Devonshire, in 1859 and 1876, and the fourth was captured in Ireland in the latter year. Of the grey-backed warbler (*Ædon familiaris*), which replaces the last in Asia Minor, Turkey, and Greece, and is greyish brown rather than rufous-brown on the upper-parts, with the middle pair of tail-feathers brown in place of chestnut, a specimen was shot at Hythe in July 1907.

Wood-Wren
(*Phylloscopus*
sibilator).

Although this species is generally referred to in ornithological works as the wood-warbler, its vernacular name is wood-wren, and by this title it ought to be known. It is the type of a group of about half-a-score of species characterised by their small size and the predominance of yellow and green in the plumage. The beak is small and delicate, the tail slightly forked, and the series of small bristles at the gape supplemented by others in front. Unlike those of the true warblers, the nests are generally placed on the ground, and the eggs are usually more or less distinctly spotted or dotted, instead of blotched. The species are difficult to distinguish. The yellow and green colour of the plumage is an adaptation to render these birds inconspicuous in the foliage amid which they habitually dwell; and to this circumstance they owe their generic name *Phylloscopus*.

The wood-wren is the larger of the three representatives of the group which habitually visit the British Islands, measuring just over 5 inches in length.² It is further distinguished by the first primary quill

¹ This name is employed by some as the generic title of the nightingale (see p. 463).

² Somewhat smaller measurements are given for this and the next species in Sharpe's *British Birds*.

being shorter than the overlying greater coverts, and the brightness of its colouring. The head has a sulphur-yellow eye-stripe, but the general colour of the upper surface is yellowish green, brighter on the crown of the head and tail-coverts than elsewhere, the feathers of the wing and tail being, however, dusky with yellowish-green edges: with the exception of the throat and flanks, which are coloured like the eyebrow-stripe, and the pale yellow wing-coverts, the under-parts are white. A greener tinge above and less brilliant yellow below characterise the hen; whereas young birds, which are coloured like the females above, are much yellower below.

A summer-visitor to Europe, the wood-wren is essentially a local species, being, in fact, what may be termed capricious in its distribution. It is found, for instance, in Sweden, but not in Norway, and in Spain, but not in Portugal. Finland forms the northern, the Kazan district of Russia and Turkey the eastern, and Algeria the southern limits of its breeding-range, but during migration it visits Asia Minor, while its winter home is Africa. The latter part of April marks its appearance in Great Britain, where the species is to be met with all over the country, except the north of Scotland, the Hebrides, and the Isle of Man, where it is only a straggler. It is, however, known to have nested in Sutherlandshire. In Ireland it is the rarest of all the regular summer warblers.



WOOD-WREN.

In 1907 the species was recorded from Fair Isle, Shetland, where several specimens were captured; while one example was taken at Sule Skerry, Orkney, in the same year. Previous to this the species was unknown in either the Orkneys or Shetlands.

The name of wood-wren admirably fits the species, as its characteristic song is to be heard in woods as the annual transformation scene is taking place in spring. From five to seven eggs are laid in a partially domed nest, made chiefly of grass, lined with hair, and placed on the ground in covert amid grass. The eggs themselves are white, with purplish-brown spots (or occasionally blotches) and underlying markings of lavender-grey.

Willow-Wren
(*Phylloscopus*
trochilus).

The willow-wren, or willow-warbler, is a rather smaller bird than the wood-wren, from which it may be distinguished by its duller colouring (the back being less green and the under-parts less white), and the greater length of the small first primary quill. It is, in fact, more like the chiff-chaff, although of rather larger dimensions, and further distinguished by the circumstance that the outer margin of the sixth primary quill is not scalloped, while the second feather of the same series is intermediate in length between the fifth and sixth. The colouring of the two species is very similar, but the tints are rather brighter in the present bird, especially on the under-parts, which are yellowish white, passing into sulphur-yellow on the flanks and wing-coverts ; the eyebrow-stripe being also of the latter colour. Both sexes are alike in colouring ; but young birds in their first plumage are duller than their parents, although after the autumnal moult they become bright yellow below and olive-brown above.



MOUNTED IN THE ROWLAND WARD STUDIOS

WILLOW-WREN.

This is one of the most striking instances of the greater brilliancy of the young as compared with adults distinctive of warblers in general ; the reason

of this peculiarity has yet to be explained.

Despite its small size, the willow-wren covers a much greater area during its migrations than the wood-wren, since it often wanders in winter as far south as Cape Colony (in place of always halting in northern or western Africa), while in summer it ranges northward to the extremity of Scandinavia, and eastward to the Yenesei valley in Siberia, where it ascends to the 70th parallel of latitude. Nevertheless, some of these birds are less fond of travelling than their fellows, and find the Sahara, or even, perhaps, southern Europe, a sufficiently long journey. Like most of its kindred, the willow-wren arrives in the British Isles in April, and remains till September. It is to be found all over the mainland of Great Britain and Ireland, although sparingly distributed in the west of England and Wales ; but to the Orkneys and Shetlands it is generally only a straggler, although it is recorded to have nested in the latter group in 1901.

Less completely a denizen of the woods than the last species, the willow-wren, during the breeding-season, may be at once distinguished from the chiff-chaff by its song, which is more like that of the wood-wren. On the other hand, it differs from the latter, and resembles the chiff-chaff in lining its nest with feathers in place of hair; while it agrees with the wood-wren, and differs from the chiff-chaff in having its legs brownish flesh-colour in place of dark brown. The five to eight white or creamy-white eggs are either speckled with reddish dots or marked by larger spots of the same colour which sometimes pass into blotches.

Chiff-Chaff
(*Phylloscopus*
minor).

The well-known and oft-repeated two-syllabled note, from which it takes its name, renders the male chiff-chaff in its breeding-haunts readily distinguishable, as already mentioned, from its slightly larger cousin the willow-wren. In length the chiff-chaff measures rather more than $4\frac{1}{2}$ inches; and the species is distinguishable from the willow-wren by the fact that the sixth primary wing-quill has its outer web scalloped, while the second is intermediate in length between the sixth and the ninth. As regards colour, the upper surface is olive-green, yellow on the loins than elsewhere; the eyebrow-streak is pale yellow; the wing and tail-feathers are dark brown with olive-green margins; and the under surface is dull white with a tinge of greenish buff. Young birds are greener than their parents, with a paler eyebrow-streak.



MOUNTED IN THE ROWLAND WARD STUDIOS

CHIFF-CHAFF.

The fact that it puts in an earlier appearance than the willow-wren, arriving in England by the middle of March, and staying till September or October, may account for the more restricted northern range of the chiff-chaff, which in Scandinavia and Russia does not extend beyond latitude 65° , or somewhat short of the Arctic Circle. Its eastern range, too, is much more limited, not extending beyond the Petchora valley and the Perm province of Russia, although it should be borne in mind that the eastern chiff-chaff, by which it is

replaced beyond this limit, may perhaps be best regarded merely as a local race.

Although rare in the north of Scotland, and apparently known only as stragglers to the Orkneys and Shetlands, chiff-chaffs are to be found all over the British mainland, but are at the same time decidedly local and less common than willow-wrens. Occasionally they elect to spend the winter with us, one being taken in Somersetshire a few days after Christmas in 1892, and a second a few days earlier than that festival in Northumberland in 1905. The species is generally distributed throughout the wooded districts of Ireland.

A more shy and retiring bird than the willow-wren, the chiff-chaff makes its presence known rather by its note than by showing itself in the open. Although often placed on the ground, the chiff-chaff's nest may be built in a low bush; and while sometimes half covered with a roof, on other occasions is a mere cup. The absence of any moss in its composition, as well as the scantiness of the feather-lining, serves to distinguish it from that of the willow-wren. From five to seven is the number of eggs in a clutch, these being marked either with small speckles or larger spots varying in colour from chocolate to purplish or blackish brown. The species is also called *Phylloscopus rufus*.

An example of the Siberian chiff-chaff (*Phylloscopus tristis*), a smaller and browner bird than our species, with buffish-white underparts and very dark shanks, was taken at Sule Skerry lighthouse, west of Orkney, in September 1902, and a second in Orkney in 1907, while three were killed in Fair Isle in the latter year.

The yellow-browed warbler (*Phylloscopus superciliosus*) of Siberia, which is a smaller bird than either of the preceding species, measuring not more than 4 inches in length, was recorded on nine or ten occasions only in Great Britain and Ireland during the past century, although in one of these instances three, and in a second, four individuals, were in company. The localities include the Scilly Islands in the south and the Shetlands in the north, Ireland claiming one example. This species, which in winter visits India, China, Japan, and Formosa, takes its name from the greenish-yellow eyebrow-streak, and is further characterised by a very indistinct greenish-grey stripe on the crown of the head and two yellow wing-bars. It is sometimes known as the crowned willow-wren. Specimens were taken or seen in Britain in 1905 and 1906, while several were observed in Fair Isle in 1907.

Nearly related to the last is Pallas's willow-wren, or willow-warbler (*Phylloscopus proregulus*), normally ranging from northern China, Siberia, and the Himalaya to the western slopes of the Urals,

and distinguished by the well-marked yellow crown-stripe and rump. A single example was taken in Norfolk in the autumn of 1896.

Of yet another Siberian species, known as Radde's warbler (*Phylloscopus schwarzi*), a British example has been obtained. This species, which is of the approximate size of a whitethroat, measuring $5\frac{1}{2}$ inches in length, is dark olive-brown above with a buff eyebrow-streak, and white under-parts shading into buffish on the breast and flanks. On account of the shorter and stouter beak, and the larger number of supplemental bristles in this region, it is frequently made the sole representative of a distinct genus under the name of *Herbi-vocula schwarzi*. The specimen referred to was taken in Lincolnshire in the autumn of 1898.

From the same county was obtained in the autumn of 1896 an example of Blyth's willow-wren (*Phylloscopus viridanus*), a species sometimes referred, with several others, to a genus apart, and then called *Acanthopneuste viridanus*, the name referring to the excessive development of the supplementary bristles near the wide beak, which completely overhang the nostrils. The species breeds in Siberia, Turk-estan, and Kashmir, visiting peninsular India in winter. Another example was obtained at a lighthouse on the Sutherland coast in 1902.

By common consent the tree-warbler, or so-called icterine warbler (*Hypolais icterina*), is made the type of a separate genus, which includes one other species. These birds, which resemble willow-wrens in general appearance, have the supplemental bristles in front of the gape even more feebly developed, while the beak is broader and flatter, so as to approach the reed-wren type. This flatness and breadth of the beak, of which the lower half is yellow, coupled with the relatively large size of the bird (length $5\frac{1}{4}$ inches), and the bright yellow of its under-parts, seem to distinguish this warbler from all the other species which visit the British Isles. Wintering in northern Africa, this warbler reaches southern Europe in April, and Holland and Denmark, which form its northern limits, during the following month. In some works the species is referred to as *Hypolais hypolais*.

Eight examples of the tree-warbler were recorded in the British Islands during the nineteenth century, the first being from Kent in 1848. With the exception of one taken near Dublin in 1856, the rest were from the south and eastern coasts of England, ranging from Dorsetshire in the south-west to Newcastle-on-Tyne in the north. Two other examples were taken in 1905, one in Sussex in June, and the other in the Isle of Wight in September.

Of the western tree-warbler (*Hypolais polyglotta*), of southern Europe and northern Africa, an example was taken in Sussex in the spring of 1897, and a second shot at Ninfield in 1900, and a third at Kinsale in 1905. Others are reported to have been seen in Devonshire in 1905 and 1906. Although larger, the bird is somewhat like a chiff-chaff, but with sulphur-yellow under-parts. It has a brilliant song.

Sedge-Bird With the sedge-bird, or sedge-warbler, we come to
 (*Acrocephalus* the first (though not the typical) representative of a
phragmitis). group of warblers collectively characterised by the
 comparative width and flatness of the base of the
 beak, and the strong development of the bristles at the gape, which are
 arranged in a horizontal row. As additional features, it may be
 mentioned that the wings and tail are approximately equal in length,
 the latter being somewhat rounded, so that with its outer feathers it
 equals more than three-quarters the total length. In the wing the first
 primary quill is very short, being considerably less than one-third the
 length of the second. All the members of the group have a brownish
 upper plumage, in marked contrast to the yellowish green of that of the
 willow-wrens and wood-wrens, the former type of colouring being adapted
 for concealment among the reed-brakes and sedge-beds which form the
 home of these birds, whereas the latter harmonises with the green
 foliage among which the willow-wren and wood-wren are found. The
 various species of the present group are exceedingly like one another,
 and there is scarcely any sexual difference in the colouring of their
 plumage. They are shy and skulking birds, very seldom seen,
 although in the breeding-season their presence is made known by
 the pleasing song of the cocks.

The present species, of which the proper designation is sedge-bird
 (sedge-warbler being merely a book-name unknown to country people),
 measures about $4\frac{3}{4}$ inches in length. The crown is streaked with light
 and dark brown, while the sides of the head are marked with a conspicu-
 ous buff eyebrow-stripe; the fore part of the back is pale reddish brown,
 indistinctly streaked with a darker shade, but the loins and tail-coverts
 are tawny: a dusky hue characterises the wing-coverts and quills,
 which have tawny buff edges; the latter colour also prevailing on the
 under-parts, but passing into brighter buff on the flanks. Hens are
 slightly duller-coloured and less rufous on the loins than their partners;
 while young birds display a yellowish tinge below, and dusky spots on
 the fore part of the neck.

Wintering in South Africa, the sedge-bird passes over the southern districts of Europe in its spring migration, but from the more central districts of the Continent to a line as far north as latitude 70° in Scandinavia, but somewhat lower in the heart of Russia, the sedge-bird is a breeding-species. Eastwards the breeding-range extends to the Caucasus and the Altai, although the bird is there less common than farther east. In the British Isles some individuals arrive late in April, but the majority in the following month; the return migration commencing in August, and continuing through September, although a few individuals may linger later. With the exception of the northern isles, to which it appears to be only a casual visitor, the species breeds throughout the United Kingdom, although it is less common and more local in Ireland and the north of Scotland than in the midland and southern English counties.



MOUNTED IN THE ROWLAND WARD STUDIOS

SEDGE-BIRD.

Like its relative the reed-wren, the sedge-bird is an accomplished vocalist, and to those who can recognise the notes, its song, which is often continued into the night, betrays its presence in places where the bird itself would escape notice. For the sedge-bird loves to skulk throughout the day in the reed and sedge brakes by the river-side, or in other covert not far removed from the neighbourhood of water. The song continues without interruption throughout May and June, and thus marks the height of the breeding-season, which may, however, be prolonged into July or even later. The nest, which is a loose

structure of bents, sedge, etc., with a little hair, down, and a feather or two by way of lining, may be placed either on beaten-down flags or rushes, on a branch above the latter, or even on the ground itself. The eggs, of which from four to six constitute a clutch, are generally clouded with pale olive-brown or buffish grey, more or less completely concealing the original greenish-white ground; and upon this clouding may be mottlings of darker brown, while hair-like streaks of black occur not unfrequently near the larger end, more especially in clutches of uniform colour.

Although the greater reed-warbler (*Acrocephalus turdoides*, or *arundinaceus*) is asserted to have nested on more than one occasion in England, the statement is not generally accepted by ornithologists, and it is probable that the authenticated occurrences of the species in England during the nineteenth century are only about seven. A specimen was, however, recorded from Sussex in 1903, and another from Norfolk in 1906. The species, which ranges in summer over the greater part of continental Europe, where it extends as far north as southern Sweden, and winters in Africa, is distinguished from the other British members of the group by its superior size, the total length falling only just short of 8 inches.

Reed-Wren
(*Acrocephalus*
streperus).

Readily distinguishable from the sedge-bird by the absence of dark and light streaks on the crown of the head, the reed-wren or reed-warbler, as it is commonly called in ornithological works, comes very close to the undermentioned marsh-warbler. With a length not exceeding $5\frac{1}{2}$ inches, the reed-wren may, however, be recognised by the chestnut tinge of the loins and upper tail-coverts, the remainder of the upper-parts being uniform pale brown, with the exception of a narrow buff eyebrow-streak, and buff edges to the quill-feathers and greater wing-coverts; the under-parts are white, passing into reddish buff on the flanks and tail-coverts. The plumage of the two sexes is alike; but young birds are duller in colouring, with most of the under-parts, especially the flanks, much more tawny, and the abdomen ashy white.

The reed-wren prefers a warmer climate than the sedge-bird, and does not apparently nest in Europe farther north than about latitude 58° , that is to say, Denmark, although the species visits the south of Sweden: the eastern breeding-range extends to Turkestan and Baluchistan, but some individuals may halt in southern Europe, the normal winter-quarters, and in Africa. On its arrival in the British Islands, it spreads itself over the southern and midland counties

of England, but is less common in the south-west than elsewhere, and gradually decreases in number in the northern districts. To Scotland it is, at most, only a rare straggler, and, although common enough in many parts of Wales, is not definitely known to have occurred in Ireland, at all events up to the close of the nineteenth century. A specimen was taken in Shetland in 1900.

Although taking its specific name from its song, the reed-wren has less loud and grating notes than the sedge-bird; but, like the latter, often sings throughout the night. The habits of the two species are very similar, although after its young are feathered the reed-wren forsakes the covert of the reed-brakes and resorts to hedges or bushes. Although sometimes building in willows or alders, the reed-wren more generally suspends its nest between the stems of bulrushes or other tall reeds; a number of these birds not unfrequently nesting in the same reed-patch. The nest itself is made of grass and rootlets sparsely lined with thistledown or wool; and, when in a reed-brake, is cleverly fixed to its supports by the weaving of some of the leaves of the reeds into its structure. Greenish or greyish white in ground-colour, the four to six eggs are heavily blotched and spotted with greenish brown, often in the form of a ring round the larger end; and they have also underlying violet markings, although these are difficult to detect.



MOUNTED IN THE ROWLAND WARD STUDIOS

REED-WREN.

Marsh-Warbler
(*Acrocephalus*
palustris).

Owing to the increased attention which has of late years been paid to the occurrence of rare birds in the British Islands, there can be little doubt that the marsh-warbler is a commoner summer-visitor than was formerly supposed; and many instances of its nesting in the south of England are now known. From the reed-wren the marsh-warbler may be distinguished by the absence of the chestnut colour of the loins and the base of the tail, as well as by the sulphur-buff, in place of reddish-buff, tinge of the under-parts,

and the broad buff line along the middle of the crown. Attempts to distinguish between the two sexes by the colour of the legs and the proportionate lengths of the wing-quills appear, however, to be untrustworthy. This close resemblance between the marsh-warbler and reed-wren renders the nest and eggs the most satisfactory means of recognising the presence of the former.

The eggs may be distinguished from those of the reed-wren by their whiter ground, upon which are blotches and spots of purple and greenish olive, with distinct underlying violet markings; while the nest, which is often built in reeds, is shallower and has a different mode of suspension.

The range of the marsh-warbler is very similar to that of the reed-wren. Up to the close of 1900 the species had been detected nesting in Middlesex, Cambridgeshire, Oxfordshire, Nottinghamshire, and Somersetshire. In 1901 it was recorded as breeding in Somersetshire, in 1903 in Sussex, in 1904 in Oxfordshire, and in 1905 in Kent. In the latter instance the nest was built in the shoots of a young ash-tree, about a yard from the ground, and well concealed by vegetation.



MARSH-WARBLER.

The aquatic warbler, or water-warbler (*Acrocephalus aquaticus*), which is a summer-visitor to southern and central Europe, from its winter-home in northern Africa, is too rare a visitor to the United Kingdom to be accorded a definite place in the list of British birds. It may be distinguished from the sedge-bird by the presence of a broad light streak in the middle line of the crown of the head, in addition to a pale eyebrow-streak on each side. Eight specimens, mostly from the southern and eastern counties, were recorded up to 1900. Since that date the species has been noticed in Sussex in 1902, in Ireland in 1903, in Norfolk in 1904, and in Sussex and the Isle of Wight in 1905. Most of the occurrences took place during the autumnal migration.

Grasshopper-Warbler (*Locustella naevia*). The grasshopper-warbler (sometimes described as *Locustella locustella*) takes its English and Latin names from the curious resemblance of its note to that of a grasshopper or field-cricket, although, as might be expected, the song of the bird is longer and louder than that of the insect. It is by this peculiar "cricking" note that the presence of the grasshopper-warbler is generally revealed, for the bird is the most skulking of its kind, creeping about in thick herbage almost after the manner of a field-mouse. The species is the typical representative of a genus with about nine species, all of which breed in Europe or northern and Central Asia, and visit Africa or India and the neighbouring countries in winter. From the reed-wren and its relatives these warblers differ by the very slight development of the bristles in the neighbourhood of the gape, which are indeed almost rudimentary, and by the much more graduated tail, in which the outer feathers are less than three-fourths the total length. In the wing the second primary quill is the longest; the first, as in the reed-wren group, being very short, not reaching the tips of the greater coverts. The under tail-coverts are also unusually long.

In general appearance the grasshopper-warbler is very like a sedge-bird, from which it may be distinguished, in addition to the above-mentioned generic characters, by its superior size (total length $5\frac{1}{2}$ inches), the absence of a distinct eyebrow-stripe, and the olive-brown upper-parts streaked with darker brown, the middle of the feathers being darker than the sides; the wing-coverts and quills, as well as the tail-feathers, in like manner have paler olive-brown margins; while the middle regions of the throat, breast, and abdomen are whitish, and the sides brown tinged with buff. Hens are characterised by a warmer tone of brown above and a more tawny tinge beneath; and in young birds the throat and breast are tinged with sulphur-yellow, and the throat and fore part of the neck finely spotted with blackish brown.



GRASSHOPPER-WARBLER.

The greater part of Europe, at least as far north as the Baltic, and thence eastwards to the heart of Central Asia, constitutes the breeding-range of the grasshopper-warbler. Arriving late in April,

this species is not uncommon in most parts of England and Wales, although, as already mentioned, but seldom seen; even in the two northernmost English counties it is said to be common, although rare in some parts of Westmoreland; but in Scotland it is local and more or less of a straggler, reaching, however, occasionally as far north as the island of Skye. In Ireland it is common in many districts, and is, in fact, so widely spread that it can scarcely be designated a local bird; while a specimen was taken in Fair Isle, Shetland, in 1907.

Grasshopper-warblers may be found amid heather, furze, badly kept young plantations, marsh-lands, and river banks, or briar-clad fences; the characteristic note being more often heard in the evening or morning than at mid-day. The nest, which is always placed on the ground, amid heather, gorse, grass, or other covert, is built of grass and moss, with a few leaves externally, but no lining of hair or feathers. Two clutches of eggs, each usually six, but occasionally five in number, are laid during the season, the first in May or June, and the second a couple of months later. Both in shape and colour the eggs are very variable; generally they have a pinkish ground dotted with reddish-brown spots of variable size, and also showing underlying grey markings of similar shape.

A specimen of Cetti's warbler (*Cettia cettii*), of south Europe and Africa, was shot in Sussex in May 1904. The species belongs to a genus in which there are only ten tail-feathers.

Savi's Warbler
(*Locustella*
luscinioides).

As a British species Savi's warbler is as extinct as the bustard, and therefore a very brief notice will suffice. Whereas, however, the bustard was hunted down, Savi's warbler disappeared from England when the fens (its chief British resort) were drained, and thus became exterminated by the same cause as the great copper-butterfly. Curiously enough, it was only recognised as a British species shortly before its extermination in this country. Wicken and Burwell Fens in Cambridgeshire were regular resorts of Savi's warbler, as was also Whittlesea Mere; but nests and eggs have also been taken in Devonshire, Essex, Kent, and Norfolk; one found in the latter county in 1856 being the last recorded instance of the species breeding in Great Britain. In consequence of the disappearance of the species so shortly after the recognition of its right to appear in the British list, there are but few English specimens of Savi's warbler in collections; and we believe the single English egg in the British Museum is damaged.

Were it not for one circumstance, it would be unnecessary to allude to the colouring of the species. It is remarkable, however, that while the grasshopper-warbler presents a striking resemblance to the sedge-bird, the present species shows an equally close likeness to the reed-wren. It looks, in fact, almost as though the two members of the present group had respectively mimicked the two species of *Acrocephalus*. From a reed-wren, the present species (apart from generic features) may be distinguished by the wider tail-feathers, which are faintly barred at the base; the general colour of the upper-parts in the male being reddish brown, and that of the under-parts white shading into buff.

To central and southern Europe the species is a local summer-visitor from northern Africa, where, however, it also breeds.



MOUNTED IN THE ROWLAND WARD STUDIOS

SAVI'S WARBLER.

**Golden-crested
Wren (*Regulus
cristatus*).**

Largely on account of the circumstance that each nostril is overshadowed by a bristle-like feather, the golden-crested wren (or gold-crest, as it is called by those who desire to give to popular names of animals a restricted meaning to which they have no claim) and its relatives are referred by many writers to a distinct family—Regulidæ. As additional arguments in favour of this view, are urged:—the diminutive size of these birds, their bright-coloured crowns, their peculiar nests, and the large number of their eggs; but none of these features, nor the whole collectively, can claim any great value, and it seems best to follow those ornithologists who include these birds with the warblers in the family Sylviidæ, of which they perhaps form a separate subfamily, the Regulinae. Here it may be mentioned that an explanation is required, not only of the use of the feather covering the nostril in these birds, but also of the purpose of the bright-coloured crown of the head common to these birds, woodpeckers, and the redpoll.

The small size of the golden-crested wren (the *Regulus regulus* of many ornithologists), whose total length scarcely exceeds $3\frac{1}{2}$ inches, coupled with the bright lemon-yellow crown, deepening posteriorly

into orange, and flanked on each side by a yellow-streaked black line, renders the species absolutely unmistakable. It may be added, however, that the upper-parts are olive-green, and the under-parts, except for an olive tinge on the flanks, white. In females the crown is uniformly pale yellow; while young birds altogether lack the yellow on the upper surface of the head, which is darker than the back. This absence of the bright-coloured crown in young gold-crests is very noteworthy, since it shows a condition precisely the opposite



MOUNTED IN THE ROWLAND WARD STUDIOS

GOLDEN-CRESTED WREN.

of that which occurs in some woodpeckers (see page 445).

The species has a very extensive geographical range, ranging from Ireland across Europe and Asia north of, and inclusive of, the Himalaya to the Pacific and Japan; the Japanese bird being, however, recognisable as a local race on account of its greyish nape. Northward it goes in summer as far as the Arctic Circle in Scandinavia. Throughout the more northern part of its range the gold-crest is indeed a migratory bird, and large flocks arrive in autumn on the east coasts of England to reinforce their resident brethren, taking their departure in April. During the journey across the North Sea some at least of

these tiny travellers ride on the backs of larger birds, such as owls. Golden-crested wrens are to be found in their favourite fir-woods, fir-plantations, or solitary conifers in gardens throughout the mainland of Great Britain and Ireland, although stated in England to be more common in the north and east than elsewhere.

The gold-crest, the smallest European bird, generally associates in parties, and feeds entirely on insects. Its low but melodious song often reveals its presence in a yew-hedge. A beautiful structure is the gold-crest's nest, made as it is of green moss, sometimes with the addition of spiders' web and hair and lined with feathers; the whole

fabric being neatly suspended to a bough by weaving the leaves of the latter into the upper part of the margin. In this cradle-like nursery the hen gold-crest lays a clutch of from five to eight buff or creamy-white eggs marked with a darker zone—either almost uniform or composed of distinct spots—at the large end. The breeding-range of the species apparently stops short of the Outer Hebrides, Orkneys, and Shetlands.

The British gold-crest (*Regulus cristatus anglorum*) is stated to differ from *R. cristatus typicus* of continental Europe by the upper surface being darker and more olivaceous, and the slightly duller under surface, while the size, as a rule, is less. The north European bird frequently crosses to Britain in flocks during autumn and winter.

Fire-crested Wren
(*Regulus*
ignicapillus).

With a much more restricted range, which excludes Scandinavia, and does not extend farther east than the Baltic, south Russia, and Asia Minor, the fire-crested wren is an occasional visitor to England for

the winter-months, chiefly confined to the eastern counties, and unknown in Ireland and practically so in Scotland, where, however, a single occurrence has been reported.



FIRE-CRESTED WREN.

In addition to being slightly larger than the gold-crest (total length nearly 4 inches), the male fire-crested wren is distinguished by the uniformly orange crown, flanked on each side by a broad black band, followed by a white line, a second black

band running before and behind the eye: a patch of golden yellow on each side of the neck affords an additional point of distinction, the rest of the upper-parts being light yellowish green. In hens the crown-patch, which is wanting in the young, is paler.

The alleged occurrence of an example of the American ruby-crest wren (*Regulus calendula*) in Scotland in 1852, seems open to doubt.

Water-Ouzel
(*Cinclus aquaticus*).

In the early days of British ornithology, a writer, impressed with the fact that the bird was not an ouzel in the strict sense of that term, proposed to replace the old English name of water-ouzel by that of "dipper"; a

change for which, of course, there is no justification. Since, however, "dipper" is very generally employed as the designation of this group, it may be added that it refers, not, as might be supposed, to the aquatic nature of these birds, but rather to their habit of constantly lowering and raising their heads when on land—in other words, bowing.

Water-ouzels are found throughout the northern hemisphere, and also descend some distance into the southern half of the New World. By some writers they are regarded as a group of thrushes specially modified for a particular mode of existence, this view being apparently



MOUNTED IN THE ROWLAND WARD STUDIOS

WATER-OUZEL.

to a great extent based on the fact that the plumage of the young is spotted. On the other hand, there are some ornithologists by whom these birds are regarded as relatives of the wren, mainly on account of the shortness of their wings and the character of their nests—both purely adaptive features. As a matter of fact, water-ouzels do not show any characteristics which decisively justify their inclusion in one family rather than another, and they are accordingly best regarded as representing a family group—the Cinclidæ—by themselves.

In addition to the spotted plumage of the young, water-ouzels are characterised by the entire absence of bristles at the gape of the beak, and the presence of a membrane covering the nostrils; the beak is about as long as the head, straight and narrow for the greater part of its length, but bent down at the tip, which is notched; the wings are short and rounded, and the tail is also very short, while the shank of the leg is long, and covered with smooth horny plates. The sexes are alike in plumage, but the hen is rather larger than her mate.

The water-ouzel is a striking and handsomely coloured bird, having the crown and sides of the head, as well as the back of the neck, sooty brown; the back and wings dark slaty grey, with broad black margins to the feathers; the throat pure white, as is the upper part of

the breast ; but the lower portion of the latter bright chestnut, passing backwards into blackish with a tinge of chestnut on the abdomen, and into slaty grey on the flanks. In young birds there is no chestnut on the lower surface. The total length of the adult varies from 7 to $7\frac{1}{2}$ inches.

The range of the ordinary water-ouzel is very restricted, including only Great Britain and Ireland, France, Belgium, Holland, and the greater part of Germany. In Scandinavia it is replaced by the black-breasted water-ouzel (*Cinclus melanogaster*, or *Cinclus cinclus*), characterised by having the breast chocolate-brown or black, but sometimes with a tinge of chestnut superiorly. In the Pyrenees and Carpathians the group is represented by the red-bellied water-ouzel (*Cinclus albicollis*), which has a paler and greyer plumage, with the chestnut of the breast extending on to the abdomen. There are indications of a transition between the British and Scandinavian birds—between which the difference is, at most, not very great or important,—and this suggests that they are races rather than species.

A denizen of rapid streams with stony or rocky beds, the water-ouzel is to be met with throughout Scotland, the north, south-west, and parts of the midland districts of England, Wales, and Ireland. In the midland counties of England, although not common, it occurs in the Peak district of Derbyshire and the Charnwood forest country of Leicestershire ; while there are reports as to its having nested in Hampshire and even Middlesex. Except in the breeding-season, these birds are solitary ; and at all times of the year they frequent streams, where they obtain their food by searching the gravelly or rocky beds for water-beetles, caddis-worms, and other insects and their larvæ ; but the allegation that they devour trout and salmon spawn has been denied. In taking to the water, the water-ouzel either walks deliberately in or enters by a sudden plunge. The four or five dull white eggs are laid in a huge domed nest of moss jammed into the crevice between two rocks or betwixt the roots of a tree on the water's edge.

Examples of the black-bellied water-ouzel (*Cinclus melanogaster*, or *Cinclus aquaticus melanogaster*) have from time to time been recorded from East Anglia.

The British water-ouzel (*Cinclus aquaticus britannicus*) differs from *C. aquaticus germanicus* of Germany by its deep blackish upper surface and dark crown, from *C. a. typicus* of Scandinavia by the rufous breast-band, which it shares with *C. a. germanicus*. The latter is nearest to *C. a. pyrenaicus*, which is, however, apparently smaller. Although

C. a. britannicus is the only race breeding in the British Isles, it is possible that the Scandinavian bird may visit these islands occasionally in winter.

Wren
(*Troglodytes*
parvulus).

As the wren was popularly supposed, at least in fable, to be the wife of the redbreast, it was only natural that as the former had received the affectionate masculine prefix of "Robin" the latter should be christened "Jenny." How the belief or fable first arose it is difficult to say, but it may be suggested that the marked difference between the plumage of the two sexes in domesticated fowls may have had something to do with the matter, and have given rise to the idea that a similar difference characterised many other birds (as indeed is the case). Although the present bird always appears to have been the wren *par excellence*, the name, like that of sparrow and ouzel, was formerly employed in what may be roughly termed a generic rather than a specific sense. Scientifically, the wren has suffered considerably in the matter of names, having, in addition to the one here employed, the titles *Anorthura troglodytes* and *Troglodytes troglodytes*.



MOUNTED IN THE ROWLAND WARD STUDIOS

WREN.

That the wren typifies a family—the Troglodytidae—is admitted on all hands. All the members of the group are small birds, with their headquarters in tropical America, but also ranging over the temperate, and even a portion of the Arctic zone of the northern hemisphere, although unknown in India and the Malay countries. With ten primary quills to the wing, wrens are characterised by the practical absence of bristles at the gape of the beak, the presence of shield-like scales on the front of the shank of the legs, and the short, concave, and closely-fitting wings. As a rule, the beak is of moderate length, slender, and somewhat curved; and in the European members of the group the tail is very short and carried upright. Barred and speckled plumage, of a brownish tone of colour, is characteristic of most wrens, this being eminently adapted to render these birds inconspicuous in their resorts.

From other British birds the wren is almost sufficiently distinguished by its diminutive size, slender beak, short upright tail, and short rounded wings. With the exception that the tone is rather

brighter in the cock, the two sexes are alike in the matter of colouring. The upper-parts generally are chestnut finely barred with dusky, but the greater wing-coverts and inner primary and secondary quills are barred with pale brown and dusky; above the eye is a whitish streak, while the cheeks are dirty white, passing into buff on the throat, and thence into brownish on the breast and flanks, which are barred. In young birds the barring is less pronounced.

Reaching as far north as latitude 64° in Scandinavia, the wren is a resident species, whose distributional area includes the greater part of Europe, as well as northern Africa, and extends eastwards to Syria, Asia Minor, northern Persia, and in Central Asia some distance beyond the Yenesei valley. In Great Britain, as well as in Ireland, wrens are universally distributed; and on the eastern coasts of Great Britain the number of resident birds is annually reinforced in autumn by arrivals from the Continent. In Shetland the wren attains a rather larger size than on the mainland, and this superior size is still more marked in the case of the wren of St. Kilda, which has been described as a distinct species, although it can scarcely be regarded as more than a local race (*Troglodytes parvulus hirtensis*). Apparently its best claim to distinction is to be found in the larger size of its eggs, since the more fully barred back and the absence of spots on the throat and breast, which have been stated to be peculiar to the island bird, are features which may also be seen in some mainland specimens.

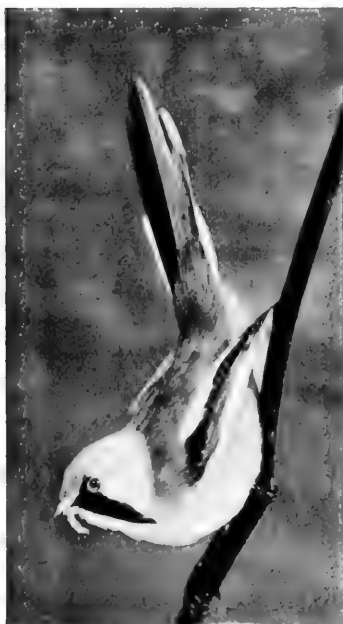
From the absence of bushes in St. Kilda the wrens are compelled to nest in the grass and other herbage, among which, and on the rocks, they seek the insects and spiders which form their food. Elsewhere, it is almost superfluous to state, wrens build domed nests composed largely of moss, and lined with feathers, in bushes or ivy, or amid the small branches fringing tree-trunks. These birds have also the remarkable habit of building a number of additional nests, which seem to lack the feather-lining, and are not used for breeding-purposes. These "cock-nests," as they are commonly called, are supposed to be either used as roosting-places, or intended to distract attention from the real nursery. Although from four to six appears to be the usual number, there may be as many as from eight to a dozen eggs in a clutch, but the latter number is rare. The shell resembles porcelain, with a few spots and a number of dots of reddish brown, generally collected at the larger end, but sometimes evenly distributed.

**Reed-Pheasant, or
Bearded Titmouse**
(*Panurus*
biarmicus).

Although the East Anglian name of reed-pheasant is not altogether free from objection, it is certainly better than such titles as reedling and bearded tit, which have been suggested for this very remarkable bird, the sole representative of the family Panuridæ.

What may be its precise affinities is still a matter of uncertainty, some authorities considering it to be most nearly related to the titmice, while others consider it to be more akin to the buntings. If habits be

any guide to affinity, the claim to relationship with the titmice is the stronger. With the latter birds the reed-pheasant agrees in having the front surface of the shank of the leg covered with transverse shield-like scales; but, on the other hand, the nostrils, in place of being feathered are open, oval in shape, and protected by a kind of flap of membrane. The short, curved, and somewhat conical beak is devoid of a notch, the wings are short and rounded, and the tail is very long and graduated—that is to say, the middle-feathers are the longest, and there is a gradual diminution in length from these to the outermost pair. After all, however, the most distinctive feature of this strange bird is the colouring of its plumage, which is of a totally different type from that of all the titmice.



MOUNTED IN THE ROWLAND WARD STUDIOS

REED-PHEASANT (MALE).

In the cock the general colour of the upper-parts is tawny orange, but the head is bluish grey, with a patch of long black feathers running downwards from the space between the eye and the beak, and forming the "beard" or "moustaches," while the median wing-coverts are also sable; on the other hand, the inner greater wing-coverts and inner secondary quills have only their middles black, the feathers of the latter series being also distinguished by their white inner webs, forming a broad band on each side of the back; in the primary quills the reverse condition obtains, their outer webs being white; on the under surface the greyish white of the throat passes gradually into pinkish grey on the breast, and this again into the tawny

orange of the flanks, which, in its turn, presents a striking contrast to the black tail-coverts. The hen has a fawn-coloured head, and no black on the cheeks or under tail-coverts, although she resembles her partner in having the beak yellow and the legs black. Young birds differ from hens in the presence of black streaks on the head and back.

Ranging, in suitable localities, over the greater part of Europe southward of Scandinavia and northern Russia, and extending eastwards into Central Asia, the reed-pheasant is one of the rapidly disappearing British birds, whose last refuge is the Norfolk Broads and neighbouring districts. Previous to the draining of Whittlesea Mere (in 1851), it was abundant in Huntingdonshire and Cambridgeshire and also in Lincolnshire and the marshes of Essex and Kent; while at a still earlier date it has been recorded from Sussex, Dorsetshire, Devonshire, and occasionally Cornwall.



MOUNTED IN THE ROWLAND WARD STUDIOS

REED-PHEASANT (FEMALE).

Although occasionally taking flights of considerable length, reed-pheasants generally skulk, especially in rough weather, among their native reed-brakes, where they creep and flit after the manner of titmice; insects and small snails, supplemented in winter by seeds, constituting their food. The nest, which is exceedingly difficult to find, is constructed of reed-leaves, lined with the flower-heads of reeds and sometimes a few feathers, and placed, as a rule, at no great distance above the ground in a bunch of reeds. The eggs, of which from five to seven form a clutch, are white marked with faint brown dots and streaks; the latter suggesting affinity with the buntings.

Nests containing half-a-dozen eggs, with the hen-bird on the top, used to be sold in Yarmouth and Norwich at the rate of fivepence a-piece for the former and a shilling for the latter; and till bird-

protection stopped the practice, the pending extermination of the species was largely aided by this traffic.

Blue Titmouse The blue titmouse is the most familiar, although (Parus cæruleus). not the typical, representative of the large family of titmice, or "tits" (Paridæ), whose range includes the greater part of the world with the exception of South and Central America and Australasia. From the fact that the nostrils are hidden



MOUNTED IN THE ROWLAND WARD STUDIOS

BLUE TITMOUSE.

by feathers, coupled with the presence of transverse shield-like scales on the front of the shank of the leg, and the circumstance that the plumage of the young is like that of the adults, only paler, it has been proposed to brigade the titmice with the crows in a single family; but this is a case of putting too much reliance on a few characters. Titmice are all comparatively small birds, with bright-coloured plumage, in which olive or yellow (or both together) is often conspicuous, short, conical, unnotched beaks, a number of short bristles at the gape, and feeble rounded wings. In the

typical genus, as represented by the blue and the great titmouse, the head is without a crest, and the tail short and rounded.

In the blue titmouse, which measures $4\frac{1}{2}$ inches in length, the crown of the head is cobalt-blue, girdled with a band of silvery white, below which is a narrow dark blue stripe extending from the base of the beak to the eye, and thence backwards to join a broad circular band running upwards to the nape and downwards below the side of the head and so on to the beak, thus enclosing an oval white patch; the back of the neck is silvery white tinged with blue; the back dull green shot with blue; the wing-coverts, of which the greater have white tips, are ultramarine; the wing-quills have cobalt outer webs and white tips to those of the secondary series;

while, with the exception of the silvery-white abdomen, the under-parts are bright sulphur-yellow ; the legs being leaden blue, and the beak black. Hens are somewhat duller coloured than their mates ; and in young birds this dulness is still more noticeable, while there is relatively less blue and more yellow.

Resident throughout the United Kingdom, although apparently unknown in the Outer Hebrides, the blue titmouse ranges northward to latitude 64° in Scandinavia and 61° in Russia, eastwards to the Urals and the Caucasus, and southwards to the Mediterranean. In autumn large flocks reach the eastern coasts of England from the Continent.

One account will serve for the habits of almost all the short-tailed titmice. Although insects, spiders, etc., form their staple diet, titmice also eat seeds, and in severe weather almost any kind of food ; in autumn they do much damage to apples and pears, especially the latter, by pecking holes around and just above the stalk. They are all tree-dwelling birds, associating in small family parties, and seldom descending to the ground ; and they all lay spotted eggs, of which there may be many in a clutch, these being deposited in roughly constructed nests of moss, grass, wool, and hair (or some of these materials), situated in holes of trees or other convenient cavities. In the case of the present species from five to eight is the usual number of eggs in a clutch, although there may be as many as a dozen. They are white, with a sprinkling of minute rust-coloured dots, often aggregated at the larger end. When there is a full clutch of eggs the young birds completely fill the nest.

The British blue titmouse (*Parus cæruleus obscurus*) differs from *P. cæruleus typicus* of continental Europe in being darker and more greenish on the back ; while its size is generally smaller, the beak is thicker, and the white tips to the inner secondaries are, as a rule, narrower and cut off in a straight line.

Great Titmouse Its greatly superior size (length $5\frac{3}{4}$ inches) alone suffices to distinguish the great titmouse, which
(*Parus major*). is the type of the genus, from the preceding species. As regards colouring, the head, with the exception of a large white patch on each side, is bluish black, this being continued downwards on to the throat and thence along the middle line of the breast and abdomen ; the back is yellowish green ; the wings are pale blue, with white tips to their greater coverts ; and, with the exception of the aforesaid black stripe, the breast is greenish yellow.

Hens are somewhat less bright than cocks, and young birds show a tinge of yellow on the cheeks.



MOUNTED IN THE HOWLAND WARD STUDIOS

GREAT TITMOUSE.

Ranging in western Europe from the Mediterranean to the Arctic Circle, the great titmouse extends across Asia north of the Himalaya to the Pacific. In the United Kingdom it is to be met with everywhere except the northern islands of Scotland, to which it is only an occasional straggler. The eggs, usually from five to nine in number, are larger and more thickly dotted with rufous than those of the blue titmouse.

The British great titmouse is distinguishable from *Parus major typicus* of continental Europe by its stouter and more powerful beak; certain alleged differences in colour not being constant. It has been named *Parus major newtoni*.

Coal-Titmouse (*Parus ater*).

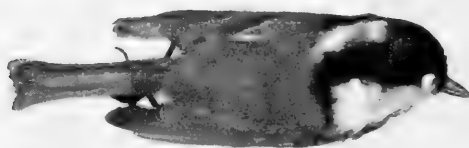
The coal-titmouse, of which the British representative may perhaps be allowed to rank as a distinct race (*Parus ater britannicus*), although certainly not as a species, measures about $4\frac{1}{4}$ inches in length, and may be recognised at a glance by the glossy blue-black crown, nape, throat, and breast, and a white spot on the back of the neck; the sides of the head and neck, as well as the breast, are dull white; the back is grey, passing into brownish towards the tail; and the wings are marked by a double



COAL-TITMOUSE (UNDER SURFACE).

white bar formed by the tips of their coverts. As usual in the group, the plumage of the females is less bright; and this dulness also obtains in the young, which are further characterised by a yellow tinge on the white areas.

With a general range very similar to that of the great titmouse, the present species does not occur in North Britain beyond Sutherland



COAL TITMOUSE (MALE).

and Caithness or in the Outer Hebrides. The eggs, usually from five to eight in number, are of the normal titmouse-type, but the rufous dots are very abundant, and tend to collect at the large end.

The British coal-titmouse (*Parus ater britannicus*) differs from the continental (*P. ater typicus*) in having the back greyish olive-brown instead of bluish grey. It is never difficult to distinguish the British coal-tit if compared with the North European (*P. ater*).

Marsh-Titmouse The marsh-titmouse differs from the preceding species mainly in having no white wing-bars, and (Parus palustris). no white spot on the nape of the neck, the latter, like the crown of the head, being uniformly glossy black; the rest of the upper-parts is ashy grey, while the sides of the head and the whole of the under-parts are dull white, with a buffish tinge. The two sexes are alike in colour; and young birds differ merely by their duller and more olive-brown tone of colour.

Titmice, more or less clearly related to the present species, are to be found all over Europe (that is to say, as far north as the Arctic Circle in Scandinavia), and extend across Asia north of the Himalaya

to China and Japan, while they also occur in the Caucasus and Asia Minor. The typical representative of the species is, however, restricted to Europe and Asia Minor; while even in northern Scandinavia and the Alps it is replaced by a bird generally regarded as a distinct species (*P. borealis*), but which, like the Asiatic bird, may perhaps be better classed as a race. Be this as it may, in the British Isles the marsh-titmouse, although by no means common, is very generally



MOUNTED IN THE ROWLAND WARD STUDIOS

MARSH-TITMOUSE.

distributed over England and Wales, but in Scotland it is a very local bird, found more commonly in the Lothians than elsewhere. In Ireland, where it was formerly observed near Belfast, as well as in County Dublin and Kildare, it is now exceedingly rare, so much so indeed that no specimens seem to have been taken of late years.

Why this species should have been called the marsh-titmouse is not apparent, as its habits are generally the same as those of the other members of the group. Indeed, the chief point in this respect seems to be the neater construction of the nest, which is, however, composed of the ordinary materials. The eggs, five to eight in a clutch, are thickly spotted with rufous and chestnut-brown.

The British marsh-tit (*Parus palustris dresseri*) is a local race, allied, not to the light-coloured Scandinavian *P. palustris typicus*, but to *P. palustris longirostris* of the Rhine, Belgium, Holland, and France. The British race differs by its smaller size, and the darker and more olive-brown tint of the upper-parts.

Willow-Titmouse Considerable controversy has taken place with regard to the alleged existence of a British willow-titmouse (*Parus atricapillus kleinschmidti*). It has been stated that the principal differences between willow-titmice and marsh-titmice are that the feathers on the crown and forehead are longer and more loosely constructed in the former than in the latter. The edges of these feathers are also glossy black in the marsh-titmouse, thus causing the crown to be glossy and of a deeper

blackness than that of the willow-titmouse, which is brownish or sooty black. In the latter, again, the tail is distinctly graduated, instead of being almost squared. To these differences may be added the darker rufous colour of the flanks and under-parts of the willow-titmouse. The British bird, which has a dull black crown, differs from the Scandinavian *Parus atricapillus borealis*, as well as from the Alpine *P. a. montanus*, but is closely allied to *P. a. rhenanus*, from which it only differs in its smaller size and browner and darker upper surface.

Crested Titmouse (*Parus cristatus*). On account of the elongation of the feathers of the crown of the head so as to form an erectile pointed crest, the crested titmouse (together with several foreign species) is frequently separated from the more typical members of the group and placed in a genus apart, when it is known as *Lophophanes cristatus*. Such refinement in classification is, however, unnecessary, at least for ordinary bird-students.

As regards colouring, the feathers of the crest are black, but the rest of the head, except for a crescent-like black patch starting behind the ear-coverts on each side, and ultimately joining another black area on the throat and breast by way of the back of the neck, is white; the back and wings are olive-brown, the flanks are buffish, and the abdomen is white. In hens the crest is shorter, and there is less black on the throat; and in the young bird the development of the crest is still less marked.

As the crested titmouse is mainly a frequenter of pine-forests, its distribution is necessarily local and scattered. That it is a hardy bird may be inferred from the fact that in Norway it ranges up to latitude 64° , and also from its absence in Greece, Italy south of the Alps, and Asia Minor. Eastwards its range extends to the valley of the Volga. In Scotland this bird is resident in the counties of Moray, Ross, Inverness, Elgin, and Banff, amid the fir-woods of the Spey valley, and also occurs in Aberdeenshire,



MOUNTED IN THE ROWLAND WARD STUDIOS

CRESTED TITMOUSE.

while in 1901 it was recorded from the Tay valley. In England it has only occurred occasionally in a few counties, among these being three so widely sundered as Yorkshire, Suffolk, and Hampshire. Statements as to the occurrence of stragglers in Ireland do not appear to be authenticated.

In addition to pine-woods, the crested titmouse may be found in birch-forests, while in Spain it frequents the cork-forests. The eggs, of which from five to seven go to a clutch, are easily distinguished from those of any other British member of the group by the very pronounced character of the rusty speckling.

The Scottish representative of the crested titmouse has been separated as *Parus cristatus scoticus*, and is stated to differ from *P. cristatus typicus* of north and east Europe, and from *P. mitratus* of central Europe by its darker, more olive-brownish upper surface, shorter wings, and browner flanks. It breeds in Strathspey. A few examples of the species observed in south and east England have been regarded as stragglers from the Continent.

**Long-tailed
Titmouse
(*Acredula*
caudata).**

The feature from which it takes its name amply justifies the generic separation of the long-tailed titmouse from the more typical Paridæ. Unfortunately, ornithologists are not in accord as to what generic name should be employed, and while some use *Acredula caudata*, others prefer *Ægithalus caudatus*, or rather, *Ægithalus vagans*, for they regard the British bird as distinct from some of its Continental representatives.

Easily recognised by the great length of its tail, the present species measures rather more than 5 inches in length. In colour the crown of the head is white bounded on each side by a black stripe running from the beak to the eye, and thence to the nape, which, together with the back, is also black; the scapulars and loins are dull rose-pink; the wings are dark brown, with white margins to the secondary quills, and the tail, except for the three outer feathers, which have broad white edges and tips, is black. The hen is darker than the cock, with less rose on the loins; and in young birds the crown of the head is white, while the rest of the upper-parts, with the exception of the black tail, is rusty brown.

The range of this handsome little bird extends from the British Isles and northern Europe generally across Siberia to Kamchatka and the northern island of Japan. Many of these northern birds migrate into central Europe in winter, and thus come into contact with

the resident birds of France, Italy, and Great Britain. In the more northern birds the black face-markings are wanting, and it is for this reason that the British and French form is separated.

Resident throughout the British and Irish mainlands, the long-tailed titmouse becomes scarce in the north of Scotland, and is practically unknown in the northern isles, although it was recorded from the Outer Hebrides in 1903. In place of breeding in holes, these birds make a beautiful oval domed nest, of moss covered with lichens and cobwebs and lined with feathers, in which the hen is believed to brood her clutch of from six to ten or eleven pinkish-white red-speckled eggs with her tail turned up over her back. As with other titmice, the hen will hiss loudly, and furiously attack any would-be robber of her nest, to which she will speedily return after his departure. The nest may be placed either in a thick hedge or on a bough. Long-tailed tits are exceedingly restless birds, constantly uttering their characteristic *zi-zi* note as they travel down the hedges in family parties or small flocks.

The British long-tailed tit (*Acredula caudata rosea*) is distinguishable at a glance from *A. caudata typica* of northern and eastern Europe by having a broad black band on the sides of the head and shorter body-feathers. It is, however, allied to *A. caudata europæa* of central Europe, from which it differs only by the shorter wing and the presence of a wide black stripe on the side of the head, while in *A. c. europæa* the head varies from pure white to the black-striped form. Specimens from the Pyrenees seem indistinguishable from the British bird. The Continental *A. caudata typica* straggles occasionally into Great Britain, but does not breed there.



LONG-TAILED TITMOUSE.

Nuthatch
(*Sitta cæsia*).

One of the most interesting of the commoner English birds is the nuthatch (sometimes described as *Sitta europæa*), which is easily recognised by its slaty blue colour, and represents a small family group, the Sittidæ, most of the members of which are natives of the northern hemisphere, although two outlying genera are respectively inhabitants of Madagascar and Australasia. Apparently the nuthatches are near

akin to the titmice, although with some affinity to the creepers. They are small birds, with short and nearly squared tails, long, pointed wings, and stout, moderately long, awl-like beaks, specially adapted for lifting or boring loose bark. There are generally bristles at the gape, and the nostrils are covered either by feathers or bristles. The legs and feet are stout, with an unusually long hind-toe, and long, curved, sharp claws.

The nuthatch, which is a stoutly built, short-tailed little bird, measuring about $5\frac{1}{2}$ inches in length, has all the upper-parts, with the exception of a black streak running backwards from the base of the beak to the eye and thence to the neck, of a clear slaty blue; in



MOUNTED IN THE ROWLAND WARD STUDIOS

NUTHATCH (FEMALE).

contrast to this is the rich buff of the under-parts, streaked on the flanks and tail-coverts with chestnut; with the exception of the middle pair, which are grey, the tail-feathers are black at the base and barred and tipped with white. Hens and young birds are distinguishable from adult cocks by their duller colouring. It is noteworthy that the entire colouring of the

nuthatch presents a remarkable parallelism to that of the kingfisher, although the tone is much paler and more subdued.

The nuthatch ranges from England through central and southern Europe eastwards to Asia Minor and Syria, and northwards to Jutland, beyond which it is replaced by the Scandinavian nuthatch—the true *Sitta europæa*—whose range stretches eastward across Russia and Siberia to Kamchatka and Japan. Throughout England the nuthatch is more or less common, but to the north it gradually becomes scarcer, and in Scotland it is practically unknown except in some of the southern counties. To Ireland it is a complete stranger.

As every one knows, the nuthatch is a thoroughly arboreal bird, although it may be found alike in woods and in garden trees and shrubberies. It is resident in England throughout the year, and is especially interesting on account of the fact that while its diet in

summer consists almost exclusively of insects, in autumn it feeds on hazel-nuts and beech-mast, which it breaks open by fixing in the interstices of bark, and then hammering with its beak. Much of its insect-food is obtained by prising off pieces of bark, often of considerable size, from the trunks and branches of trees, up and along which it runs and climbs in a manner recalling both a titmouse and a woodpecker.

As a rule, nuthatches breed in holes, in trees, or walls, laying their first clutch of from five to eight rusty-spotted white eggs during April or May, in a mere apology for a nest—the eggs being often mixed up with debris when the nursery is in a tree. In the latter case the sides of the entrance to the nesting-hole are plastered with mud till the aperture is reduced to the requisite size. Two instances are known of nuthatches nesting in a sand-bank, while there is also a record of a pair of these birds having converted to their own use a deserted magpie's nest by lining it with clay. More remarkable still is the well-known case in which a pair of nuthatches built a clay-nest in the side of a hay-rick.

The British nuthatch (*Sitta europæa britannica*) differs from *S. europæa typica* of Sweden in having the under side buff instead of white, and from *S. europæa cæsia* of Germany in the lighter chestnut of the flanks, the paler breast and abdomen, and by the more slender and pointed beak, of which the profile is usually more arched and more sharply ridged.

Tree-Creeper
(*Certhia*
familiaris).

Like the nuthatch, the tree-creeper is the sole British representative of a family of birds, to which it gives the name Certhiidæ. This family is distributed over the greater part of the northern hemisphere, inclusive of the Indo-Burmese countries, and is also well represented in Australasia and Africa. In place of the blue and chestnut so characteristic of the nuthatch, the colours of the plumage are generally a mixture of black, brown, rufous, grey, buff, and white. From the titmice the group is distinguished by the absence of feathers or bristles over the nostrils, and bristles at the gape (which are generally developed in the titmice) are likewise wanting. As a rule, the shank of the leg is stouter than in the nuthatch, and the hind-toe is always shorter. The members of the typical genus are broadly distinguished from the nuthatch by the long, graduated, and stiff-feathered tail, which serves the same purpose as that of a woodpecker; but this must not be considered characteristic of the family, as in most of the genera the tail is of the nuthatch-type. In most cases the beak is long and curved.

The slender, curved beak and the long, graduated tail of stiff-pointed feathers are alone sufficient to identify the tree-creeper. Among the distinctive features of the plumage may be mentioned, the dull white streak on each side of the head above the eye; the pale shaft-streaks to the dark brown feathers of the rest of the head, neck, and back; the buffish-white barring of the wings; the dull reddish brown tail; and the silvery-white under-parts. No difference can be detected between the plumage of the two sexes; and young birds differ merely by the more marked rufous-yellow tinge of the upper-parts.

Premising that it has been proposed to separate the British representative of the species as *Certhia familiaris britannica*, and that there



TREE-CREEPER.

may also be local races on the continent of Europe and in Asia, a very extensive geographical range is possessed by the creeper, reaching in fact from the British Isles across Europe and Asia north of the Himalaya to the Pacific coast, while northwards it embraces Scandinavia as far as about latitude 60°, and southwards Algeria.

Pine-forests are, however, essential to its permanent presence in a district. As regards the British Isles, the creeper is a resident and generally distributed bird, extending as far north as Caithness and the island of Skye, but only straggling occasionally to the Orkneys and Shetlands.

Although creepers are far from uncommon birds they are comparatively seldom seen, except by those who can recognise their characteristic notes, and know how to look for them. To detect the bird even when the note is recognised is, however, by no means an easy matter, as the creeper is somewhat of a ventriloquist, and also has the habit of keeping to the side of the tree opposite to that facing the spectator, where it will often remain for a time without moving. Owing to its stiff tail-feathers, this bird can ascend a tree-trunk in true woodpecker-fashion, although the weakness of its beak prevents it from either prising up pieces of bark like a nuthatch, or drilling holes like a woodpecker. Consequently the small insects and spiders which constitute the chief food of the species are taken on the outer surface of

the bark. The nest, which is always well concealed, may be placed either in a hole or in a fissure in the bark of a tree, or behind one of the timbers in the roof of an outbuilding, and is a somewhat rude structure of moss and rootlets intermingled with chips of wood; feathers being in some instances employed as a lining. In this structure during April or May is laid a clutch of from four to half-a-dozen eggs, which may be one of two types. In the one type the ground-colour is buffish or reddish white, and the spots rufous, with a tendency to collect at the larger end; in the other phase the ground is nearly pure white, and the colour of the spots varies from reddish to blackish brown, in addition to which there is a deeper layer of obscure violet markings.

The British tree-creeper (*Certhia familiaris britannica*) differs strikingly from *C. familiaris typica* of Sweden in its rufous brown upper surface, and from *C. f. macrodactyla* of central Germany by having the rump, and, in freshly moulted specimens, the whole upper surface more rufous, while the beak, as a rule, is longer.

The beautiful wall-creeper (*Tichodroma muraria*) of the mountainous districts of central and southern Europe and Asia, is the sole representative of a genus characterised by the soft tail-feathers. In colour the plumage of the upper-parts is grey, but there is a large and conspicuous patch of crimson on the wing. Only four examples of this beautiful bird appear to have been recorded in Great Britain up to the year 1900, namely, one in Norfolk in 1792, a second in Lancashire in 1872, a third in Sussex in 1886, and the fourth in the Channel Islands in 1899. A fifth was taken near Hastings in 1905.

Pied Wagtail With the pied wagtail, or "dish-washer" (both names bearing allusion to the peculiar jerking movements of these birds), we reach the first, although not the typical, representative of the family Motacillidæ, which includes not only the wagtails, but likewise their near relatives, the titlarks or pipits. The members of both these groups are slenderly built, long-tailed birds, adapted for running on the ground, and therefore quite unlike the representatives of the three preceding families. From all the preceding groups except the Hirundinidæ (with which, of course, they cannot possibly be confounded) the wagtails and titlarks differ by having only nine, in place of ten, primary quills in the wing. They are further characterised by the beak being comparatively long, slender, and notched, as well as by the circumstance that the longest secondary quills reach nearly or

quite to the tip of the wing. Bristles, although not large or numerous, are developed at the gape of the beak ; the shank of the leg is covered with smooth plates behind, but in front has to some extent shield-like transverse scales, and there are twelve tail-feathers. In addition to a complete one in the autumn, these birds undergo a partial moult in spring. The two sexes are alike, or nearly so, in colouring, and the young differ but slightly in this respect from their parents. None of them are good songsters. Wagtails are to be met with in every part of the world except Australasia and the South Sea Islands, even Alaska being visited by one species. Most of them breed in the

colder zones of the northern hemisphere and migrate south in winter. They are divisible into two sections, one with pied and the other with yellow plumage. All wagtails are fond of the neighbourhood of water.



MOUNTED IN THE ROWLAND WARD STUDIOS

PIED WAGTAIL (MALE IN SUMMER).

When in its summer breeding-dress the cock of the pied wagtail has the front and each side of the head, a patch extending from the latter on to

the side of the neck, the tips of the wing-coverts, broad margins to the secondary and narrower ones to the primary quills, and the two outer tail-feathers white ; the remainder of the upper-parts are black, as are the throat and fore portion of the breast, white occupying the rest of the under-parts, with the exception of the flanks, which are dark grey. The hen falls short of the cock by half-an-inch in length, measuring only 7 inches, and is further distinguished by having the back leaden grey streaked with black. In the winter-dress the back of both sexes is uniformly grey, and the throat white with a crescent-shaped black gorget, of which the tips reach the ear-coverts. Young birds differ from their parents in winter-dress in that the head is of the same ashy grey colour as the back, with a tinge of yellow on the sides, while the upper portion of the breast is mottled with greyish black.

The present species has a somewhat restricted range, being confined to western Europe in summer, where its eastern breeding-

limits are formed by Holland and Norway, the bird also breeding in Belgium and France, but being only an accidental visitor to Belgium and Italy. In winter a certain number of these wagtails migrate to the south of France, Spain, and northern Africa. In the British Islands, where it is partially migratory (some individuals moving southwards but not leaving the country, while others cross the Channel), the species breeds everywhere, with the exception of the Shetland Islands, where it is only seen on migration, although comparatively few individuals nest in the Orkneys and Outer Hebrides.

In those parts of the country where it does not remain for the winter, the return of the pied wagtail is one of the signs of the advent of spring; the graceful, undulating flight of these birds rendering them peculiarly attractive, as do their tameness and familiarity during the breeding-season. At each dip in the flight the well-known call-note is uttered. The food of this and other wagtails consists mainly of insects and other small invertebrates, the former being frequently caught in the air, either as the bird runs along the grass or in a short flight undertaken for the capture. The rough nest of grass, rootlets, and moss, neatly lined with hair, wool, and a few feathers, may be placed in a hole of a bank, amid the roots of a tree, in the ivy on a wall, or in an outbuilding. The first clutch of five to six eggs may be laid so early as April, and the second in June or July. In ground-colour the eggs are dirty grey or bluish white, upon which are numerous small spots of purplish brown thickly crowded together. Wagtails' nests, like those of titlarks, are special favourites with cuckoos.

It has been proposed to regard the pied wagtail merely as a local race of the white wagtail. On this view the name of the former will be *M. alba lugubris*, and that of the latter *M. a. typica*.

White Wagtail In summer-dress both sexes of the white wagtail
(*Motacilla alba*). are easily distinguished from the pied species, having the back light ashy grey, the forehead and the sides of the head and neck white, the abdomen also white, but the throat and fore part of the neck black, and the outer tail-feathers white with a black edge to the inner web. In winter the resemblance to the pied wagtail is very close, the present species being mainly distinguished by the paler grey of the back. In young birds the white on the head and throat displays a tinge of yellow, and the plumage is almost indistinguishable from that of the pied species at the same age, although there is more white on the wings and the general tone is paler.

Although the two species may be found in company in England



MOUNTED IN THE ROWLAND WARD STUDIOS

WHITE WAGTAIL (SUMMER).

in summer and in southern France during the winter months, the white wagtail breeds far north and has a more easterly range than its pied cousin, ranging in summer to Greenland, Iceland, and the Färoes in the north, and as far as the Yenesei valley to the eastward. As is frequently the case in similar instances, its winter southern range is likewise more extensive, embracing as it does Senegambia and a large part of north-eastern Africa, as well as India and Burma.



WHITE WAGTAIL, SHOWING UPPER
AND LOWER SURFACES.

Although far less common and less widely distributed than the pied species, with which it is no doubt often confounded, and with which it will interbreed, the white wagtail is a regular spring-visitor to England, where it has occasionally nested, and has also been observed in many parts of Scotland, including the southern Shetlands in 1901; but in Ireland it appears to have been chiefly recognised in spring in or near the coast of Mayo, especially Killala Bay, and then only occasionally.

As mentioned above, the pied wagtail is perhaps only a western

race of the white species, in which case it should be called *Motacilla alba lugubris*. The wagtails are, however, an exceptionally difficult group to classify, and, as is noted later on (pp. 537 and 538), a considerable amount of uncertainty still obtains among naturalists as to the number of species and races—even among those visiting the British Isles—which should be recognised.

Grey Wagtail
(*Motacilla*
melanope).

In its breeding-dress the male of the grey wagtail (often known as *Motacilla sulphurea*) may be distinguished without difficulty by the slaty grey of the crown and sides of the head and back, the black throat, and the sulphur-yellow under-parts; additional characters being



MOUNTED IN THE ROWLAND WARD STUDIOS

GREY WAGTAIL (MALE).

the presence of a white stripe above the eye, and of another running from the base of the beak to the neck, the black middle tail-feathers and the white outer ones, and the buffish-white margins to the inner secondary quills. The hen has a shorter tail than the cock—in which this appendage is of unusual length—and is further distinguished by her duller colouring, and the absence or slight development of the black on the throat. This black area disappears also from the cock in winter-dress, when the under-parts assume a buffish tint. Young birds resemble their maternal parents, with the exception that they are browner, and have buff eye-stripes.

This wagtail, which is partially migratory, ranges across Europe and Asia from the Atlantic to the Pacific, not reaching, however, northward of central Russia and southern Sweden, and in winter

visiting the mountains of north-eastern Africa, India, Burma, and even the Moluccas. In the southern counties of England it is chiefly known as a migrant, but it breeds regularly in other parts of the mainland of Great Britain and Ireland, while it is also known to have nested in Buckinghamshire, Sussex, Dorsetshire, Gloucestershire, Devonshire, and Cornwall.



GREY WAGTAIL (FEMALE).

This species may be regarded as to a great extent a connecting link between the pied and the yellow sections of the group, having a dress approximating to the type characteristic of the former, but in its fondness for water and low river-side meadows recalling the latter. In addition to water-insects, this wagtail feeds on small river-snails and fish-fry. The eggs, of which there are from five to seven in a clutch, have a more olive ground-colour than those

of the pied and white species. The nest is generally built in a well-concealed position near a stream.

Yellow Wagtail (*Motacilla raii*).

Although the name *Motacilla campestris* is now frequently employed for the yellow wagtail, it seems preferable to retain the more familiar *M. raii*, or *rayi*. Possibly, indeed, this bird should be regarded merely as the western race of the blue-headed wagtail, when it should be known as *Motacilla flava raii*. In summer the forehead, the sides of the head, and under-parts of the cock are bright yellow, and the crown and upper-parts generally olive-yellow; the hen being similarly coloured but duller. In autumn the cocks become greener above, inclusive of the forehead, although a yellow stripe remains above the eye. Young birds are olive-brown above, inclining to yellow on the loins, with the



MOUNTED IN THE ROWLAND WARD STUDIOS

YELLOW WAGTAIL. (MALE).

ear-coverts brown, and the throat and breast fawn, the latter being, however, marked with obscure spots.

The distribution of this species is not very different from that of the pied wagtail, although it extends eastward into Russia and Turkestan. It is the birds from the latter countries which probably migrate in winter to East Africa, whence they wander south as far as the Transvaal, but the western birds find their winter-home on the Atlantic side of Africa. To the British Isles this handsome species is a summer-visitor, arriving in April and staying till September. Occasionally a belated individual remains longer, one having been recorded from the Isle of Man in December 1901. Although common during the summer-months in the low meadows of the Thames valley and other parts of the south-east of England, in the south-western counties it appears to be only known on migration. Its breeding-range includes, however, most other parts of England as well as the south of Scotland, but in Ireland the species is very local, nesting only round Lough Neagh in Ulster, and Loughs Carrig and Mask in Connaught.

The haunts of this wagtail are chiefly low meadows, and on arrival, flats by the seashore, where these canary-like birds congregate in flocks, before breaking up into pairs for the breeding-season. At the conclusion of the latter, they again collect in companies, and often roost in reed-beds. The four to six eggs, which are very variable in colour, being sometimes uniformly olive-brown, in other cases pinkish brown, and in yet others mottled, are laid in a nest of rootlets or dry grass, carefully concealed in a hole in the grass, or sheltered by a stone, or even occasionally placed on a bank.

If it be permissible to regard the yellow wagtail in the light of a local race of the blue-headed species, the former should be known as *M. flava raii* and the latter as *M. flava typica*.



YELLOW WAGTAIL (FEMALE).

**Blue-headed
Wagtail
(*Motacilla flava*).**

As already mentioned, the blue-headed wagtail is very closely related to the last, of which, indeed, it may be only the eastern and typical form. In breeding-plumage the cock may, however, be distinguished by the bluish-grey crown of the head and nape, white eye-stripe, and dark grey ear-coverts; the rest of the upper surface of the head and neck, as well as the back, being greenish olive tinged with yellow; the wing-coverts and quills are dark brown, the former and the inner secondaries having yellowish-white edges: with the exception of the three middle pairs, which are black, the tail-feathers are mostly white, as are the sides of the face and throat, the rest



MOUNTED IN THE ROWLAND WARD STUDIOS

BLUE-HEADED WAGTAIL (MALE).

of the under-parts being gamboge-yellow. The hen is not duller in colouring, but rather smaller in size, measuring just over 6 in place of $6\frac{1}{2}$ inches in length. In autumn the yellow of the lower surface becomes more intense. Young birds differ from hens in that the grey of the head is mixed with brown, and the

yellow of the lower surface tinged with brown and orange-buff.

The distribution of this species is curiously similar to that of the white wagtail, extending in summer from central and southern Europe to Siberia; while in winter the European birds visit Africa, while some of those from Central Asia take an easterly route to pass the winter in Burma and southern China. To the British Isles the species is an occasional visitor, rarely occurring in Scotland and unknown in Ireland. It is recorded to have nested in Northumberland during the 'seventies, and in Sussex in 1901 and 1903, while it has probably also bred in Suffolk. In May 1907 two pairs of these birds nested in a marsh in Kent. The nest was placed amidst tall grass on the bank of a ditch, and contained six eggs. The blue-headed wagtail does not perch so readily as the yellow species, for while the latter settles freely on bush, tree, or fence, and may be seen sitting on telegraph-wires, the blue-headed wagtail is never seen anywhere but on the ground, except when the male settles for a few

moments on the flat top of a post in the vicinity of the nest. When the female returns to the nest she does not creep up as wagtails usually do, but takes a long circular flight and then settles on the tall grass immediately over it, clinging there for a few seconds and then slipping down the stems of the grasses much in the way a reed-wren would. Probably the blue-headed wagtail is much commoner in this country as a breeding-species than generally suspected.

In at least one work on British birds this species is described as the grey-headed wagtail; that name properly belongs, however, to a closely allied bird, *Motacilla borealis*, or *M. flava borealis*, or *M. viridis*, which has also a wide summer range in Europe and northern Asia, visiting Africa, India, and the Malay countries in winter. A specimen was recorded from Yorkshire in 1901, two were shot in Sussex in 1903, and a third in the following year, while a fourth nested in Romney Marsh, Kent, in 1906. It was noticed on passage in Fair Isle in 1907. A single specimen of the Indian blue-headed wagtail (*M. beema*, or *M. flava beema*) was killed in Sussex in 1898, and one of the black-headed wagtail (*M. melanocephala*, *M. flava melanocephala*, or *M. feldeggî*) in the same county in 1903; both being Central Asian birds, which migrate south in winter. Lastly, two specimens, one from Cornwall and a second in 1842 from Norfolk, of the Mediterranean ashy-headed wagtail (*M. cinerea*, or *M. flava cinerea*) have been recorded.¹

Tree-Pipit So far at least as general colouring and appearance
(*Anthus trivialis*). are concerned, the pipits, or titlarks, serve in some degree to bridge over the gap between the wagtails and the larks, having a brown lark-like plumage. On the other hand, they resemble the wagtails in the smooth hind surface of the shank of the leg, the great relative length of the secondary quills, the two annual moults, and the curiously undulating flight; in all of which respects they differ widely from the lark-tribe. Pipits of the typical genus, which is alone represented in Britain, have a practically world-wide distribution, being absent only from the South Sea Islands.

The tree-pipit (sometimes described as *Anthus arboreus*) is a medium-sized bird, specially characterised by the fact that the claw of the hind-toe is curved and shorter than the toe itself. The upper-parts are sandy brown streaked on the crown of the head and fore portion of the back with darker lines; the wing-coverts and inner secondary

¹ For the characters of these various forms of yellow wagtail, the reader may refer to a paper by Mr. N. F. Ticehurst in *British Birds* (the serial), vol. i. p. 133 (1907).

quills have buffish margins; the outer pair of tail-feathers is mostly white, and the throat and abdomen are wholly so, although the rest of the under-parts has a buff tinge and is marked with elongated dark brown spots, most pronounced on the fore part of the breast. The hen is slightly smaller and somewhat less spotted. After the autumn-moult the plumage becomes brighter coloured than in the breeding-season, the under-parts especially assuming a rich buff tint. Young birds are more heavily spotted on the breast than their parents.

The tree-pipit breeds throughout the whole of northern Europe south of latitude 69° in Scandinavia, and thence eastwards to the Yenesei valley, where, however, as usual, the northern limit is several degrees farther south. In southern Europe the species is chiefly known as a migrant, although stated to nest occasionally in some of the mountains; and to Africa and north-western India it is a winter-visitor. To England and Scotland, as well as Wales, it is a summer-visitor, breeding in wooded districts throughout the greater part of the country, but gradually becoming scarcer in the more northern Scottish counties. Reports as to its occurrence in Ireland appear to be unfounded.



MOUNTED IN THE ROWLAND WARD STUDIOS

TREE-PIPIT.

Although nesting on the ground—frequently on the bank of a hedge bounding a wood, but at other times in open fields—after the manner of the

other members of the group, this pipit is essentially a woodland bird, keeping, however, mainly to the outskirts of woods and plantations, where it may be recognised by its wagtail-like flight and characteristic song. Its food consists mainly of insects, which are captured in the well-known wagtail-fashion. The nest is composed of grass mingled with rootlets and moss and lined with hair and finer grass; and the eggs range in number from four to seven. The latter vary so greatly that description is impossible on the present occasion, and it must suffice to state that while the ground-colour ranges from purplish red to greyish stone, the markings may be in the form of either dots or blotches, consisting in each case of a superficial reddish-brown series and an underlying set tending more to grey.

Titlark In addition to being slightly smaller, the titlark, or (Anthus pratensis). meadow-pipit, is broadly distinguished from the preceding species by the circumstance that the claw of the hind-toe is nearly straight and longer than the toe itself. The titlark is, moreover, a darker bird than the tree-pipit, the upper-parts being olive-brown with darker stripes, while there is a dull white band above the eye, and the outer pair of tail-feathers is white only towards the tips, while the under-parts, especially the flanks, are more heavily spotted, although less so in the hen than in the cock. After the autumn moult the whole plumage assumes a buff tinge; this being still more pronounced in young birds, which are less heavily spotted than young tree-pipits.

The geographical range of the titlark includes all central and the greater part of northern Europe, and extends eastwards through Asia as far as the valley of the Obi. In the British Islands, where it is one of the most familiar of birds, alike on commons, moorlands, and other open tracts, as well as on marshes by the coast, it is a resident species, migrating, however, in autumn towards the eastern and southern districts, and in some cases leaving the country for the winter. Such travellers, it is said, may be recognised on their return in spring by their brighter plumage, as compared with that of their stay-at-home relatives. The nest, which is always on the ground, is built of dried grasses, mixed with a certain amount of moss, and lined with hair or fine grass, and containing at the proper season from four to half-a-dozen eggs, which are subject to very considerable variation in the matter of colour and markings. The general hue is, however, brown, produced by mottlings on a light ground, but sometimes so developed as to form a practically uniform coating, with only an occasional hair-like line.

Nearly allied to this species is the red-throated pipit, or titlark (*Anthus cervinus*), which breeds from Scandinavia in the west to Siberia in the east, and migrates in winter to Egypt, India, Burma, and China. During these periodical journeys a stray individual has now and then wandered to the British Islands. One, for instance, was killed in Shetland in 1854, a second in Kent in 1880, a third in Sussex in



TITLARK.

1884, a fourth in the same county in 1885, and a fifth in 1901. In 1895 and again in 1901, a specimen was taken in Ireland. The absence of spots and streaks from the throat, which is of a wine-red colour like the sides of the neck, serves to distinguish this species from the titlark.

Richard's Pipit (*Anthus richardi*). Its large size—superior to that of any other species—affords an easy method of recognising Richard's pipit on its comparatively rare visits to the British Islands. In length the male bird measures about $7\frac{3}{4}$ inches, and the female somewhat less; another distinctive feature being that the claw



RICHARD'S PIPIT.

of the hind-toe is equal in length to the toe itself. In general appearance this bird is decidedly lark-like, being dark brown above, with buff margins to the feathers of the back, reddish-buff tips to the wing-coverts, and buffish-white edges to the secondary quills. A white throat merges into buff on the breast and flanks; the breast being marked by lance-shaped dark spots which extend to form a line on each side of the throat terminating at the base of the beak, but are wanting on the flanks. The hen is less ruddy, while young birds are distinguished by the duller and paler upper-parts, and the more abundant spotting of the throat and breast.

A native of central and north-eastern Asia, where its breeding-range extends from eastern Turkestan and the Yenesei valley to Mongolia and eastern Siberia, this pipit is a winter-visitor not only to China and the

Indo-Malay countries, but likewise, although in a more limited degree, to eastern Europe, whence a certain number of individuals wander as far west as the British Isles. Up to the close of last century about half-a-hundred instances of the occurrence of the species in England had been recorded, and one was taken in Scotland in 1880. Up to 1907, when a specimen was taken near Dublin, the species was unknown in Ireland. Among later occurrences, it may be noted that an example was taken in Wales in 1901, and a second in Cornwall in 1904.

Tawny Pipit
(*Anthus*
campestris).

A rarer and much more local visitor to the British Isles is the tawny pipit, so named from the circumstance that in the adult the breast and flanks are devoid of the spotting so characteristic of pipits in

general, while the wing-coverts have broad sandy margins, and the general hue of the upper-parts is tawny, tinged with grey and streaked on the crown of the head and the fore part of the back with a darker shade; the lower surface being whitish with a tinge of buff on the breast and flanks. Hens differ by the presence of slight dark streaks on the sides of the head. During winter a more conspicuously tawny hue pervades the entire plumage; this being also specially noticeable in young birds, which likewise display dusky spots on the head and chest. The total length is just over 6 inches.



MOUNTED IN THE ROWLAND WARD STUDIOS

TAWNY PIPIT.

Although not strictly a desert-bird, the tawny pipit is a frequenter of open and dry sandy country rather than moister districts, and normally ranges in summer from Siberia and Turkestan to central and southern Europe, while in winter it migrates to north-western India and northern Africa, occasionally travelling far south in the latter

continent. The stragglers that occasionally visit Great Britain nearly always arrive on the south coast, and more especially in Sussex. Thus, out of a score of individuals recorded up to 1900, all but four were taken in that county, mostly in the neighbourhood of Brighton. Of the other four, one occurred at Scilly, two in the eastern counties, and one in Yorkshire. Another individual was recorded from Sussex in 1903; and it is stated by a writer in the *Zoologist* for the following year that the species may probably be regarded as a regular autumn visitor to that county.

Water-Pipit The water-pipit, although a rare visitor to the British
(*Anthus spipoletta*). Islands, can scarcely be refused a place in the list. When in the immature or winter-plumage, in one of which conditions the British stragglers are probably to be found, the species may be distinguished from immature tawny pipits by the presence of dark streaks on the flanks. From the titlark it generally differs by having the tips of the pair of tail-feathers next to the outer ones brown in place of white on the outer web; while from the rock-pipit it is distinguishable by the light portion of the outer tail-feathers being white in place of smoky brown. Ranging from the Altai to the mountains of central and southern Europe, the water-pipit sometimes wanders to England, especially the south-eastern counties, although it has also been taken in Lincolnshire. It was long supposed that up to 1899 only nine British specimens could be authenticated, but a considerable number have since been added to the list.

Rock-Pipit The true rock-pipit, which measures about $6\frac{3}{4}$ inches
(*Anthus obscurus*). in length, is characterised by the olive-brown, varied by darker streaks, of the upper-parts, and the dun ochery olive streaked and clouded with greyish brown of the lower surface; an especially distinctive feature being the smoky brown of the external webs of the outer pair of tail-feathers. In young birds the streaks are more numerous. It is a larger and darker bird than the titlark.

On the rock-bound coasts of Ireland, Wales, and Scotland, as well as in similar situations in certain parts of England, this pipit is a resident species; but on the south coast, as well as in the inland counties, it is to be met with only during migration or in the winter, when it sometimes makes its appearance in considerable numbers. The nest, which is always placed close to the shore, may be either on

a cliff, or in a hole in a rock or bank, and although generally built of grass, may contain a larger or smaller admixture of seaweed. The four or five eggs are usually dark-coloured, owing to very heavy mottlings of dark or reddish brown which more or less completely obscure the greyish or greenish white ground. On the Continent the range of this bird is stated to include the coasts of the north and west of France.

On the shores of the Baltic, as well as of Denmark and Norway, the true rock-pipit is represented by the closely allied Scandinavian rock-pipit, distinguished by the absence of the dark markings in the breeding-plumage on the under surface of the body, which is of a rich buff tint. This bird is generally regarded as a distinct species, under the name of *Anthus rupestris*, but might perhaps be better ranked as a local race. The Yorkshire and Lincolnshire pipits of this type seen in autumn are stated to belong almost entirely to the Scandinavian form.



ROCK-PIPIT.

Shore-Lark (*Otocorys alpestris*). Although evidently allied on the one hand to the pipits (and more especially to the titlark, which has a similar long hind-claw), and apparently less intimately related on the other hand to the buntings, the larks, or *Alaudidæ*, are broadly distinguished from all other British perching birds by having the hind surface of the shank of the leg covered with large transverse scales instead of by a continuous greave-like plate. In addition to this feature, it will suffice to state that the members of the family have ten primary wing-quills, of which, however, one is so short as to be often overlooked. With the exception that the shore-larks range into America, where they reach as far south as Bogota, while one genus is found in Australasia, the larks are essentially inhabitants of the three great continents of the Old World and the adjacent islands.

They are likewise all ground-nesting birds, and most of them frequent open commons, meadows, or arable ground, although a few prefer deserts, and some haunt the skirts of woods. The nest is always made of grass or bents, and the eggs are thickly mottled. Very

characteristic of the group are the upward spiral flight, and the song—which attains its highest melodious development in the sky-lark—uttered while soaring skywards. While some are resident, or make only a partial move in winter, others are thoroughly migratory; and the majority of the species—some of which collect in large flocks during winter—are birds of social habit.

The shore-lark, as already stated, is a member of the one genus of the family which ranges into the New World; a genus readily distinguished by the presence in the cocks of a pair of small horn-like or ear-like tufts of black feathers on the head—whence the name of “horned



SHORE-LARK.

larks” applied to the group generally. Among other characteristics of the British species may be mentioned the pale yellow of the front of the head, of the eyebrow-stripe, and of the throat and sides of the neck; the presence of one black band across the fore part of the head, terminating in the “horns,” of a second in front of the eye and extending backwards to form a patch on each side of the head, and of a third across the upper part of the breast. Pinkish brown, with obscure dark brown streaks, is the prevailing colour of the upper-parts, while there are white lines on the tips and margins of the wing-quills, and the under-parts, except the brown flanks with darker streaks of the same colour, are dull white. The absence of “horns,” her slightly superior size, and

the narrower black bar on the crown of the head sufficiently distinguish the hen from the cock; while young birds are characterised by their buff-mottled dark brown plumage.

The shore-lark, which breeds on the sub-Arctic moorlands of northern Europe and Asia, as well as in the corresponding latitudes of North America, is only an irregular winter-visitor to Great Britain, where it chiefly frequents the eastern coasts, and is unknown in Ireland. It generally arrives in small parties, which of late years have shown a tendency to be more frequent and more numerous in individuals than formerly. Its food consists of seeds, insects, and small marine animals.

Till recently the Siberian white-winged lark (*Melanocorypha sibirica* or *Alda sibirica*) was known as a British straggler only by a single

individual taken in Sussex in 1869, but two others were recorded respectively from that county and Kent in 1902. The species is a member of a group of large larks, with stout beaks and more pointed wings, in which the secondaries do not reach the tips of the primaries. The distinctive feature of the present species is the presence of a bright rusty red shoulder-patch, formed by the lesser and primary wing-coverts. There is no evidence that the South European calandra-lark (*M. calandra*) has ever been taken in the British Islands.

Lark

(*Alauda arvensis*).

In the case of such a familiar and favourite species as the lark, or sky-lark, anything in the way of description seems almost superfluous, but the following brief diagnosis may be advisable. Except for the dull white breast and abdomen, the general colouring is brown, with streaks of darker brown on the upper-parts, and lance-like spots of the latter on the front of the neck; the first primary quill is minute, and the claw of the hind-toe very long. Hens are slightly smaller than their mates. Considerable variation in size and colouring is, however, noticeable; resident British birds being smaller and paler than the arrivals from abroad in autumn. Indeed, it has been proposed to distinguish the Scottish lark as a separate race, with the name *A. arvensis scotica*. Young larks may be recognised by the mottled appearance of the upper-parts, due to dark brown spotting on a sandy buff ground, and white horse-shoe-shaped markings formed by the pale edges of the feathers.



MOUNTED IN THE ROWLAND WARD STUDIOS

LARK.

Breeding as far north as, or even a little within, the Arctic Circle, the sky-lark is spread all over Europe, although represented in the south by a paler form, which, however, like other light-coloured phases met with in Asia from the Himalaya to China and Japan, is best regarded merely as a local race. With regard to habits, it will suffice to state that although the lark is a resident British species, yet a great number migrate into the southern districts in winter, where they are

reinforced by a large influx of strangers from east and north-east Europe. About the end of January 1907, a flock of black larks (*Alauda yeltoniensis*), of which several were taken, visited south-eastern England.

The short-toed lark (*Calandrella brachydactyla*), representing a genus distinguished from *Alauda* by the smaller bodily size of its members, their relatively longer wings, and the curved claw of the hind-toe, is too rare a visitor to the British Islands to be accorded a definite place in the list. Up to the year 1908 only eleven instances of the occurrence of their species appear to have been recorded; most of these being from the south coast of England, although one specimen is Irish, and another was taken in the Outer Hebrides (Flannan Islands) in 1904, while a fourth occurred in Fair Isle in 1907. This lark is a southern species, breeding in the south of France, and thence through the Mediterranean countries as far east as Turkestan. The general colour of the plumage of the back is sandy brown, with dark brown middles to the feathers, while the quills and tail-feathers are dark brown with buffish edges.

A still rarer visitor is the crested lark (*Galerita cristata*), a member of a genus in which the head has a long and pointed crest, the first primary quill is relatively large, the claw of the hind-toe shorter than the beak, and the beak itself comparatively long and slender. As these features are sufficient to identify the species, further description may be omitted. The species ranges over portions of the three great continents, but during last century less than a dozen instances of the occurrence of this lark in the British Islands were recorded, and some of these may be doubtful. The majority of these specimens were from the southern counties of England, but one came from Ireland. One from Cambridgeshire is stated to have been reared from a nest.

Wood-Lark The wood-lark (which, together with the three species just mentioned, is included by some writers in *Alauda*) is the sole representative of its genus, which differs from *Calandrella* by the longer claw of the hind-toe, and the fuller and more rounded, in place of pointed, crest. From the sky-lark, to which it presents a close superficial resemblance, the wood-lark may be distinguished by its inferior size (length not exceeding half-a-dozen inches), the much shorter tail, the more slender beak, the longer first primary quill, and the presence of a broad buff eyebrow-stripe. In the hen the crest and wings are shorter; while immature birds are apparently distinguishable from young sky-larks merely by the longer first primary quill.

Local in its distribution, and migrating to the southern districts in winter, the wood-lark is a much less common bird in England than its larger cousin. It is also to be found locally in several parts of Ireland, where it breeds; and the same is the case with the southern and central counties of Scotland, but to the more northern districts it is only a straggler, although it has been recorded at least once from the Orkneys. Outside Great Britain the range of the species is comparatively restricted, including Europe as far north as latitude 60° , but extending into Asia only so far as Persia. To southern Europe and North Africa it is chiefly known as a winter-visitor.

With the exception that it frequents the outskirts of woods, where it perches on branches from which it takes its soaring flights, the wood-lark has the same general habits as the other members of the family, and displays its essential affinity with them by roosting on the ground. Connoisseurs in such matters consider its melody superior to that of the sky-lark. The wood-lark also excels the latter species in the matter of nest-building, the constituents of the structure being more closely woven together, and the lining consisting of finer material.



WOOD-LARK.

Bunting
(*Emberiza*
miliaria).

Although by a few writers they are referred to a family by themselves, there can be little hesitation in including the bunting and yellow hammer in the same family group with the finches, that is to say, the Fringillidæ. Widely distributed in both the western and eastern hemispheres, and containing a very large number of species, presenting great variation in form and appearance, although with a general resemblance to one another, that family is characterised by the absence of notches in the cutting-edges of the more or less stout and conical beak; the smooth covering of the hind-surface of the shank of the leg, the front of which carries shield-like scales; the presence of twelve tail-feathers and of only nine primary quills in the wings, the first and second of which are nearly equal in length; the position of the nostrils close to the base of the beak and near the middle line; and the short and sparse bristles at the gape. The plumage of the

nestlings varies considerably in the matter of colouring in different species ; and, as a rule, the adults of the two sexes differ conspicuously from one another in this respect.

Like larks, buntings and finches undergo, as a rule, but one moult in the year ; nevertheless, in many cases there is a considerable difference between the summer and winter plumage, owing to the fact that in spring or early summer the edges of the feathers become worn away or are otherwise lost. This produces, as in larks, a marked change of colour, tending in the case of the present family to greater uniformity and brilliancy. In marked contrast to the slender-beaked



MOUNTED IN THE ROWLAND WARD STUDIOS

BUNTING.

warblers, the members of the bunting - finch group subsist principally on grain and fruit when adult, although they also eat insects, which constitute the sole nutriment of the nestlings. In winter most of these birds collect in large flocks, which are composed of one sex only ; and although they obtain much of their food on the ground, upon which they progress by hopping, they are at other times essentially perchers. Many of them, such as the linnet and the bullfinch, are excellent songsters.

As a group, the buntings, or *Emberizinae*, are characterised by the circumstance that the horny sheath of the beak does not extend backwards behind the line of the front margin of the socket of the eye ; while there is a larger or smaller interval between the edges of the upper and lower halves of the beak when closed, and the lower half is sharply angulated at the base of the horny portion. Scribbled lines and hair-like dark streaks on a light ground are very characteristic of buntings' eggs.

The bunting or corn-bunting, as it is often called, differs from other *Emberizinae* by its more uniformly coloured plumage, and especially the absence of a patch of white on some of the outer feathers of the tail. In general appearance this bird presents indeed a striking similarity to a lark, for which it is no doubt often mistaken. It may, however, be distinguished by the shortness of the claw of the hind-toe,

the absence of a white patch on the outer tail-feathers, the blunted contour of the tips of the secondary quills of the wings, and the characteristic bunting-beak. The colour of the plumage—which presents no sexual difference—on the upper-parts is hair-brown streaked with darker brown, the wing-coverts being, however, dark brown with buff edges; the throat and upper part of the breast, as well as, in a somewhat less degree, the flanks, are tinged with buff and streaked with dark brown, but the remainder of the under-parts is dull white; young birds are darker than their parents, with the light margins to the wing-coverts tawny rather than buff.

Ranging only as far north as the south of Scandinavia, and in Russia to the neighbourhood of Riga, while to the southward it extends to the Canaries and the north of Africa, the bunting is pretty generally distributed all over Europe between these limits, where it is a resident species, while to the eastward it is found as far as central Persia. In Great Britain the species occurs almost everywhere, having been recorded from the Shetlands, but not apparently from the Outer Hebrides. In Wales, however, it is mainly confined to a narrow strip of country near the coast. Like the sky-lark, the resident British birds migrate to a great extent at the approach of winter to the southern counties. The name of corn-bunting bears testimony to the partiality of these birds in the south of England for cornfields, in which the nest is generally placed, protected by a tussock overshadowing a hole in the ground. The eggs, which should be looked for towards the latter part of May, are noticeable for the boldness of their purplish-black markings, which take the form of blotches, spots, and straight and scribbled lines on a ground varying from greyish buff to pale brownish purple.

Yellow Hammer
(*Emberiza*
citrinella).

Although the name yellow hammer is admittedly a corruption of the German *ammer* (a bunting), it is too firmly ingrained in the vernacular to be displaced even by the alternative book-title of yellow bunting, much less by yellow ammer. With this species we come to one of the more typical representatives of the group, characterised by the presence of a white patch on the tail-feathers. The cock is unmistakable on account of his bright lemon-yellow head and neck; on the back of the neck is a grey area, extending on to the back of the head as two widely sundered bands; the back and wings are mostly wood-brown with darker streaks, but the hind portion of the former is chestnut; a tinge of chestnut is likewise noticeable on the

breast, and the flanks are brown with streaks of a darker shade. A general duller tone of colour, with more streaks on the back, the yellow restricted to the crown of the head and an eyebrow-stripe, and little or no chestnut on the loins and breast, distinguish the hens; while young birds show no yellow at all, and but few streaks on the under-parts.

The yellow hammer may be regarded as typically a resident in the more central districts of Europe, whence it ranges in summer as far north as latitude 70° in Scandinavia, and to about 64° on the Obi river, in western Siberia, which is apparently near its eastern limits; in winter, on the other hand, it visits a large portion of southern Europe, as well as Turkestan to the eastward. Throughout the mainland of the British Isles it is a common resident



MOUNTED IN THE ROWLAND WARD STUDIOS

YELLOW HAMMER.

species; but to the Orkneys, where it is recorded to have nested on two occasions, it is known only as a straggler. In Barra, in the Outer Hebrides, it has been noticed only on two or three occasions.

The habits, and likewise the eggs, of this familiar bird, are too well known to need detailed mention.

Cirl-Bunting Although presenting a marked resemblance to the yellow hammer, the cock of the cirl-bunting (a much more local species than the last) may be recognised by the following features:—The fore part of the back is deep chestnut streaked with dark brown, and passing into greenish olive on the loins; the crown of the head and the nape are olive streaked with black; the space in front of the eye, the ear-coverts, and the throat are black; above and below each eye is a lemon-

yellow stripe, while the neck has a gorget of sulphur-yellow in front ; the fore part of the breast carries an olive-grey band, followed by one of chestnut-brown ; and the abdomen is yellow. In the hens buff replaces black on the throat, a pale yellow line above the eye alone represents the yellow and black of the head ; the lesser wing-coverts are greenish grey, while black streaks on a dingy yellow ground form the colouring of the under-parts. Still more sombre are young birds, which show no yellow at all, although a generally buffish tinge pervades the whole plumage.

The warmer parts of Europe are the chief home of this species, whose breeding-range appears to be limited to the eastward by the Crimea, although the bird is also known in Asia Minor. Southwards the breeding-area embraces the northern districts of Africa, where, however, the species is better known as a winter immigrant. In the British Islands the cirle-bunting is most commonly seen in the southern counties of England, although it is recorded to have bred in the Midlands. It was observed in Cardiganshire and Carnarvonshire in 1902, in which year it

was also definitely recorded for the first time from Ireland. To Scotland it is only a very occasional straggler.

Although more addicted to woods, and of a less bold disposition, in general habits the cirle-bunting very closely resembles the yellow hammer. Frequently, however, it nests in bushes—sometimes at a man's height—rather than on the ground ; and the eggs differ in some slight details of colour and marking from those of the more familiar species.

In September 1905, near Cley, in Norfolk, was shot an example of the yellow-breasted bunting (*Emberiza aureola*), a species breeding in the neighbourhood of Archangel and farther east, of which examples have previously been recorded from France, Italy, Austria, and Heligoland.



MOUNTED IN THE ROWLAND WARD STUDIOS

CIRL-BUNTING.

Reed-Bunting
(*Emberiza*
schœnielus).

Very unmistakable and easy of recognition is the handsome reed-bunting, in which the head and throat of the adult cock are black, except for a white band extending backwards from the root of the beak to form a gorget which merges inferiorly in the white of the breast; the back and wing-coverts are brownish black with bright bay streaks, the loins are grey with black streaks, and the flanks have similar streaks on a white ground. After the autumnal moult the back of the head and throat is obscured by broad reddish-brown edges to the feathers, and it is not till spring that, by the wearing away of these margins, the more striking coloration is fully revealed. In hens at all seasons, as well as in the young, the black areas of the head and throat are severally replaced by reddish brown and buffish, with dull black streaks, and a buffish-white eyebrow-stripe.



REED-BUNTING (MALE).

The breeding-range of the reed-bunting is very extensive, including the whole of Europe, with the exception of the extreme north, and central and northern Asia up to the limits of forest; in winter this species visits north-western India. In suitable situations—such as bushes, reed-brakes, or clumps of purple loosestrife by water—this bunting is to be met with commonly throughout the British Isles, having even been known to nest in the Orkneys and the island of Barra in the Outer Hebrides; in Ireland, however, where it is believed to be partially migratory, it is less common than in other parts of the kingdom. Although mainly restricted to river-courses during the warmer months, where its striking plumage renders the cock a conspicuous object, reed-buntings in winter consort with other buntings and finches on corn-lands. The nest may be either on the river-bank itself or elevated above the ground in a bush; and the four to six eggs have the scribbled black lines and spots very conspicuously defined on a ground of buff or brown stone-colour.

Up to the close of last century the dwarf bunting, or little bunting (*Emberiza pusilla*), which is widely distributed in eastern and southern Europe, and central and northern Asia, visiting India and occasionally straggling to western Europe in winter, was known only by a single

British example taken at Brighton in 1864. In 1902 the species was recorded from Teesmouth, Durham, and near Rugby; two years later an example was taken in Orkney, and in 1907 nine examples were seen in Fair Isle.

The presence of black streaks on the white of the flanks is a distinctive feature of the dwarf bunting, which measures only $4\frac{3}{4}$ inches in length. In the rustic bunting (*Emberiza rustica*), which is a quarter of an inch longer, on the other hand, the streaks in this region are chestnut-red. This bunting has a distribution very similar to that of the last; and at the close of the last century the British examples included one from Brighton in 1867, a second from Yorkshire in 1881, and a third from Elstree reservoir in the following year. A fourth example was taken in Sussex in 1902.

A third species rarely visiting the British Isles is the black-headed bunting (*Emberiza melanocephala*), whose range extends in summer from southern Europe to the Caucasus and Persia, and includes India in winter. The cock in breeding-plumage is characterised by his full black head, the absence of streaks on the flanks, and his large size (7 inches in length). Very few British records for this species during the nineteenth century are admitted, including one at Brighton in 1868, and another in Nottinghamshire in 1884. A female was also taken in Fair Isle, Shetland, in 1907, stated to be the fifth British specimen. Of the Siberian and Chinese Brandt's bunting (*Emberiza cioides*) one example was taken at Flamborough Head in 1886; while of the south European meadow-bunting (*E. cia*) two specimens were recorded from Sussex in 1902, and a third was taken in Kent in the spring of 1905. In the autumn of the same year an example of the yellow-breasted bunting (*Emberiza aureola*) was shot in Norfolk. The species breeds at Archangel.

Far less uncommon is the ortolan, or ortolan-bunting (*Emberiza hortulana*), which is indeed almost entitled to a definite place in the British list. Measuring 6 inches in length, the adult cock is specially characterised by the cinnamon-tint of the abdomen, the olive-yellow throat, the more ashy breast, the absence of streaks on the flanks, and the wholly red beak. Apparently arriving from Africa in spring, the ortolan spreads itself over southern and central Europe in summer (where some are permanent residents), whence individuals occasionally straggle to the British Islands. The first known of these stragglers was taken so long ago as the year 1776; and several instances of the occurrence of the species in England were recorded during the nineteenth century. There are also a few Scotch records, including some from Fair Isle, and at least one from Ireland.

On May 26, 1908, there was shot at Lydd, Kent, a male of the large-billed reed-bunting (*Emberiza pyrrhuloides palustris*), the first example of its kind recorded from the British Islands. As implied by its name, the species is distinguishable from the ordinary reed-bunting by its much stouter beak. The typical race of the thick-billed species ranges from the Caspian district to Turkestan; the Lydd specimen belongs to the south-western race, inhabiting Italy, the south of France, and Spain.

Snow-Bunting
(*Plectrophanes*
nivalis).

The great length of the wings, which reach nearly to the tip of the tail-feathers, coupled with the pied plumage, is generally considered a character of sufficient importance to entitle the snow-bunting and its Alaskan relative (*Plectrophanes hyperboreus*) to be referred to a separate genus. In the cock of the present species during the spring



MOUNTED IN THE ROWLAND WARD STUDIOS

SNOW-BUNTING.

months the middle of the back, the inner secondary quills, and the terminal portions of the primaries (with the exception of narrow white margins), and the middle tail-feathers, together with the beak, are black; the remainder of the plumage being white. In hens at the same season the head and neck are streaked with greyish black, the crown is tinged with rusty red, and the remainder of the upper surface mottled with blackish brown and chestnut; the lower-parts being

white with a chestnut tinge on the throat and chest. Young birds are similarly coloured. After the autumnal moult the beak in both sexes becomes yellow, while the feathers of the upper-parts show broad chestnut edges, which become worn away with use during the winter.

It is interesting to note that while the cock has developed a pied livery specially adapted for protective purposes on ground dotted over with patches of snow, the hen has not succeeded in entirely discarding the ordinary bunting-colour.

An inhabitant of the Arctic and sub-Arctic zones of both hemispheres, the snow-bunting is chiefly a winter-visitor to the British Islands, frequently making its appearance on the eastern and south-eastern coasts of England in large flocks. In the year 1861 this bunting was discovered nesting in Shetland, and since that date it has been ascertained that it breeds regularly in several parts of Scotland, notably on Ben Nevis. To the Outer Hebrides, where it arrives early in October, it appears, however, to be only a winter-visitor. The nest, which is composed of grass and twigs, with a little moss and a lining of hair and feathers, is placed on the ground, generally in such a position as to be screened from the direct rays of the sun. The eggs, of which the number ranges from five to seven, or even eight, have a ground-colour of grey stone, cream, or bluish white, upon which are spots or streaks of purplish black, with underlying lavender or greyish-violet markings. There is, however, great variation in the eggs, those in which the ground is bluish green approximating to the goldfinch-type.

Lapland Bunting
(*Plectrophanes*
lapponicus).

On account of the length of the claw of the hind-toe, which exceeds that of the toe itself, the Lapland bunting (together with two allied North American species) is frequently separated generically from the snow-bunting, under the name of *Calcarius lapponicus*; but such distinction is perhaps unnecessary.

In addition to the length of the hind-claw, the cock is characterised as follows:—Contrasting sharply with the black head and throat, a white line runs behind the ear-coverts from above the eye to join the white of the breast; a further contrast being made by a broad chestnut band on the back and sides of the neck; on the rest of the upper-parts the feathers are dark brown, with reddish-brown edges deepening to chestnut on the greater wing-coverts and inner secondary quills; while the white under-parts are streaked on the breast and flanks with black. In hens the crown of the head is blackish brown and the throat white; the lower part of the ear-coverts, a stripe running

backwards from the beak, and a second from the lower half of the beak to the breast are black; with the exception that the chestnut collar is smaller and less bright, and the whole tone of the plumage duller, the rest of the colouring is like that of the cocks. Young birds are still

duller and darker, with spots of darker brown on the pale brown of the under-parts.



MOUNTED IN THE ROWLAND WARD STUDIOS

LAPLAND BUNTING.

The distribution of this circumpolar species is very similar to that of the snow-bunting; but to Great Britain this bunting is only a casual autumn and winter visitor, almost unknown in Scotland and the Isles, although a specimen was recorded from the Flannan Islands in the Outer Hebrides in 1904. In Ireland it

appears to be altogether unknown. No instance of its nesting in the United Kingdom has been recorded.

Of the white-throated bunting, or white-throated sparrow (*Zonotrichia albicollis*), three stragglers to Great Britain were recorded during the nineteenth century, namely, one near Aberdeen in 1867, a second near Brighton in 1872, and a third in the vicinity of Hull in 1893.

Chaffinch (*Fringilla cœlebs*).

With the familiar chaffinch, which derives its name of *cœlebs* (bachelor) from the fact of the cocks collecting in large flocks during the winter, we come to the first representative of the typical finches and sparrows, collectively constituting the subfamily Fringillinæ. From the preceding subfamily (Emberizinae) they are distinguished by the much less marked angle formed by the inferior border of the lower half of the beak, and likewise by the fact that, when closed, the two halves of the beak are in contact by their edges throughout their entire length. Abundant in the northern half of the Old World, finches and sparrows are poorly represented in India, Burma, and Africa, and are wanting in Oceania and Australasia; on the other hand they are numerous in South America

The eggs are simply spotted, and lack the scribbled lines characteristic of those of the buntings.

The white upper wing-coverts alone suffice to distinguish the chaffinch from all its kindred. In the cock the forehead is black, the nape and sides of the neck are leaden blue, the fore part of the back chestnut, the loins olive-green, and the sides of the head and the under-parts pinkish brown; the greater wing-coverts being tipped with white slightly edged with buff. In hens and young birds the crown of the head and back are greenish brown, and the breast pale yellowish grey; the loins and wings being coloured practically the same as in cocks.

In the case of such a familiar bird little need be said as regards distribution, and practically nothing concerning habits. The geographical range includes all Europe up to the Arctic Circle, and extends into western Siberia about as far as Tobolsk. Except the Shetlands and the Outer Hebrides, to which it is only a visitor, the species breeds throughout the British Islands. The most noticeable feature as regards the breeding-habits of the chaffinch is the beauty and neatness of its nest, which by the addition of lichens or spiders' webs to the exterior is so admirably harmonised to its surroundings that, if the birds themselves would but remain silent, it would seldom attract the notice of the casual passer-by. The rounded eggs very generally, although by no means invariably, possess a peculiar "blotting-paper" tinge, specially noticeable round the dark spots.



MOUNTED IN THE ROWLAND WARD STUDIOS

CHAFFINCH.

Brambling
(*Fringilla*
montifringilla).

With the exception of an apparently well authenticated instance of its having bred in Scotland in the year 1866, the brambling is only a winter-visitor to the British Isles, where it sometimes makes its appearance in vast flocks, and frequently prolongs its stay till the

spring is well advanced. Although, when on the ground or on a bough, it may easily be mistaken for a chaffinch, the moment it flies the white patch at the root of the tail reveals its distinctness from that bird. In the spring-plumage of the cock the head, neck, and back are black with steely blue reflections, the loins white, the lesser wing-coverts orange, the greater coverts black with buffish-white tips,



MOUNTED IN THE HOGLAND WARD STUDIOS

BRAMBLING.

forming a wing-bar, most of the breast and flanks reddish fawn, with black spots on the latter, and the lower part of the breast and abdomen white. After the autumnal moult the black areas are rendered less intense by the usual light-coloured edges of the feathers. In the hens and young birds the black patches are replaced by dull brown, and the wings and under-parts are more dingy than in adult cocks.

From Europe, where the breeding-range in Scandinavia extends as far north

as Christiania, or thereabouts, the brambling is found across northern Asia to Japan, while in winter it visits the south of Europe, the north of Africa, and the north-west Himalaya. During the winter it may be met with throughout the British Islands, including, although only occasionally, the Outer Hebrides. Beech-woods are its favourite haunts.

Goldfinch
(*Carduelis*
elegans).

Owing to incessant pursuit on the part of bird-catchers, the goldfinch, a few years ago, was more or less completely exterminated from many districts where it was once common. Thanks, however, to

efficient bird-protection, it is now fast re-establishing itself in its former haunts. Goldfinches, of which there are two species, are closely allied to the chaffinch and brambling, from which they are distinguished by their more slight build, the longer and more pointed beak, and the style of colouring.

At all ages the goldfinch (now often known as *Carduelis carduelis*)

is characterised by the black wing, traversed, when open, by the golden yellow bar from which the species takes its title. In the adult cock the feathers at the root of the beak are black, as is the crown of the head, from which extends a somewhat crescent-shaped sable band forming the hind border of a white cheek-patch, defined in front by the bright crimson of the forehead and throat; the back is brown; the inner primary and the secondary wing-quills have white tips, as have most of the otherwise black tail-feathers, although in the three outer pairs these are replaced by spots; with the exception of a broad brownish-buff gorget on the breast, extending backwards to the flanks, the under-parts are white. A smaller red area on the head is distinctive of hens. In young birds this is altogether absent; the upper-parts are greyish brown, the under-parts are spotted with brown, the quills show buff in place of white markings, and the outer pair of tail-feathers alone carries white spots.

The geographical range of the goldfinch extends to western and central Siberia, where, as in eastern Europe, it is represented by a larger race known as *C. e. major*, which interbreeds with the grey-headed *C. caniceps* of eastern Siberia. In Scandinavia the goldfinch breeds some five degrees farther north than the brambling.

Its distribution in England, although local, is widespread, except in the north, where the species becomes scarce. To Scotland the goldfinch is only an occasional visitor, and in Ireland its distribution is very local. Like so many birds, goldfinches are partial migrants in England during autumn and spring.

Years ago the enclosure of commons had doubtless much to do with the diminution in the number of British goldfinches, as their chief food consists in summer of the seeds of thistles and docks. Fruit-trees, shrubs, or isolated forest-trees form the favourite nesting-sites of this beautiful bird, which builds an elegant cup-shaped nest of moss, decorated externally with lichen and lined with hair and down. Creamy blue or bluish white is the ground-colour of the four or five rather small



MOUNTED IN THE ROWLAND WARD STUDIOS

GOLDFINCH (MALE).

eggs, upon which are reddish-brown spots or streaks, with underlying markings of pale grey. It should be added that the British goldfinch has been distinguished as a separate subspecies under the designation *Acanthis carduelis britannicus*, which, on the system here followed, would be equivalent to *Carduelis elegans britannicus*.

The British goldfinch is stated to differ from the continental bird by its darker, more olive-brown upper surface, the white patch on the neck is less well developed, the ear-coverts, rump, and upper tail-coverts are more or less tinged with brown, and the sides of the body are darker and more uniform brown. The red of the head is generally very bright.

Siskin
(*Chrysomitris*
spinus).

Although often classed in the same genus as the goldfinch (under the name of *Carduelis spinus*), the siskin is now more generally regarded as representing a genus apart, mainly distinguished by a different style of colouring. Siskins, of which there are several species, have, moreover, a much wider geographical range than either

of the genera of Fringillinae hitherto mentioned, occurring not only throughout Europe and Asia north of the Himalaya, but likewise in many parts of Africa, and in both halves of the New World.



MOUNTED IN THE ROWLAND WARD STUDIOS

SISKIN.

Except in autumn and most of the winter, when the full colouring is obscured by brownish margins to the feathers, the cock siskin presents the following features:—Greenish olive with black streaks is the predominant hue of the upper-parts, but on the crown of the head, the space in front of each eye, and a patch beneath the lower jaw this is replaced by black, while the greater wing-coverts are also black, although tipped with white; on the loins the green passes into yellow, which ex-

tends on to the tail-coverts; and the under-parts are greyish white, tinged on the throat with greenish yellow, and streaked with black. Olive-brown with dusky streaks, extending over the crown of the head, characterises the upper-parts of the hen, while the lower-parts are

greyish white, tinged on the throat and breast with greenish yellow, and streaked with dusky black. A generally duller and browner hue distinguishes young birds from their female parents.

The siskin, which takes its name from its cry (Swedish *siske*, a chirper), is essentially a northern finch, breeding in Scandinavia as far north as the head of the Baltic, whence the range gradually southernns to about latitude 58° in the Urals, to the eastward of which it is continued across Siberia to Japan. In winter the siskin visits southern Europe, and it is at this season that it is most commonly seen in England, although it is recorded to have nested in several counties, including Middlesex and Sussex. Much the same may be said with regard to Ireland; but in Scotland the species breeds regularly, frequenting for this purpose, as in Scandinavia, pine-forests, where it builds at a considerable height above the ground, in such a position that the nest is difficult to detect. Both nest and eggs are of the type of those of the goldfinch, the latter being, in fact, indistinguishable from those of that bird.

Of the citril finch (*Ch. citrinella*), which breeds in central Europe, a specimen was taken in Norfolk in 1904.

Linnet That excellent songster, the linnet—which takes its (Linota cannabina). English and its generic name from *linum* (flax), and its specific title from *cannabis* (hemp)—is one of those birds which suffer from a plurality of scientific designations, being variously described as *Linaria cannabina*, *Acanthis cannabina*, and *Cannabina cannabina*, in addition to the title here employed, which is the one at present used in the galleries of the Natural History Museum. Linnets and their immediate relatives have the beak shorter and thicker than in siskins and goldfinches, and lack yellow in their colouring, which frequently includes red on the head and sometimes also elsewhere, at any rate during the breeding-season.

A truly handsome bird is the cock-linnet at that season, when the forehead and centre of the breast are crimson, the head and neck ashy grey, the back, wing-coverts, and flanks chestnut, the upper tail-coverts black and white, the outer webs of the feathers of the tail white, and the under-parts dull white with inconspicuous greyish-brown streaks. After the autumn moult the crimson is veiled by the broad grey edges of the feathers, and it is not till these are rubbed off that the glories of the spring-plumage reappear. In young birds and hens the head and neck are distinctly striped with dusky brown,

as is the back, which, like the greater wing-coverts, is tinged with chestnut; while the streaks on the lower surfaces are also more pronounced than in adult cocks.

The northern breeding-range of the linnet is some three degrees short of that of the siskin, while to the eastward the typical form of the species reaches only to the Caucasus, where, as in Central Asia, it is replaced by a paler phase, with white margins to the greater wing-coverts. The ordinary form is, however, found in northern Africa and the Canary Islands. In Great Britain and Ireland the linnet is a resident and widely-spread species, although unknown in

the Shetlands and almost so in the Outer Hebrides. A general movement of the species takes place towards the south and east, when many linnets leave the country; those returning in spring being distinguishable from the stay-at-home birds by their somewhat brighter colouring.

Furze-bushes, and to a less degree broom and heather, are the favourite nesting resorts of the linnet, which occasionally, however, builds under their shelter on the ground. Seeds, especially, in localities where they can be obtained, the oily ones of hemp



MOUNTED IN THE ROWLAND WARD STUDIOS

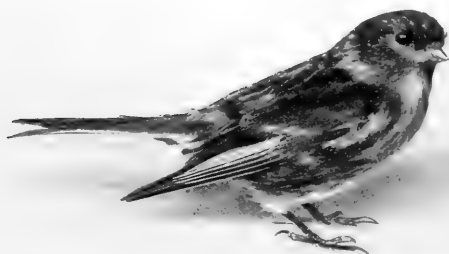
LINNET (MALE).

and flax, constitute the chief food of the species, and even the young are fed to a less extent on insects and more on seeds than is the case with other members of the finch-group. The song, which causes the linnet to be a favourite cage-bird, is, in the wild state, chiefly characteristic of the breeding-season. The cup-shaped nest of moss is of the usual finch-type, with a lining of hair, wool, and some feathers; while the bluish eggs are characterised by the general aggregation of rust-coloured spots, overlain by blackish-purple lines and streaks, in a ring at the larger end.

Twite
(*Linota*
flavirostris).

From the linnet the twite (so called from its twittering note) may be distinguished by its more slim build, relatively longer and distinctly forked tail, and the yellow beak from which it takes its Latin name.

As regards plumage, the cock is at once recognisable by the rose-pink patch on the loins, the colouring being elsewhere dull; the head is ashy grey marked with broad dark brown streaks, the back brown with darker streaks, the outer webs of the secondary and inner primary quills are white, and the under-parts buffish with dark brown streaks on the breast. The hen has no rose-pink on the back, while



MOUNTED IN THE ROWLAND WARD STUDIOS

TWITE.

young birds are further distinguished by their duller tone of colouring. It should be added that *Cannabina flavirostris*, *Linaria flavirostris*, and *Acanthis flavirostris* are alternative names for the twite, or "twitterer."

Special interest attaches to this bird on account of the fact that its chief breeding-places are in the British Isles, the only other country where it nests being apparently Norway. According to a writer in the *Zoologist* for 1906, the twite nests in most parts of the British Isles where moors, mountains, and exposed heathy districts occur, and is by no means restricted, as has been supposed, to the more northern parts. Its special preference appears, however, to be for the neighbourhood of rocky coasts, especially those exposed to the Atlantic, which may account for its breeding so far south as Derbyshire and even Devonshire (where it is recorded to have nested

in 1904), but not in Wales. In winter twites migrate southwards in large flocks. The nest is of the finch-type, but usually placed on the ground; and the eggs are light blue or bluish white, with red or purple spots and lines, usually arranged in a ring round the larger end.

Redpoll
(*Linota linaria*).

With the redpoll, or mealy redpoll, as it is usually called (the *Cannabina linaria* of some books, the *Linaria linaria* of others, and the *Acanthis linaria* of yet others), we come to the typical representative of a subsection of the linnet group the members of which exhibit a great range of variation within comparatively small limits, so that opinion is divided as to which should be called species and which merely local races or subspecies.

Of the typical redpoll, the cock in spring is characterised by the blood-red forehead and adjacent portion of the crown; the rose-pink, mixed with white and blackish brown, throat and breast; and the crimson tinge of the loins; the upper-parts being elsewhere mottled and streaked with greyish, while the lower portion of the breast and the flanks (which are streaked with dark brown) are dull white; there is also a black spot in front of the eye, and a second at the base of the under side of the lower jaw. As usual, the more brilliant parts are obscured after the autumnal moult by grey edges to the feathers, which communicate a pallid tone to the entire plumage. Less red on the head, more white on the lower-parts, darker upper-parts, and more streaks everywhere characterise the hen; while young birds have no red at all, but a buff tinge to the feathers of the upper surface. Redpolls are to be met with all round the North Pole, although some difference of opinion exists as to whether the Siberian and American birds should be reckoned as races or species. Be this as it may, the typical redpoll is merely a winter-visitor, somewhat irregular in its appearance, to the British Isles. Redpolls, which are generally more common in Scotland and on the east coast of England than in the south, sometimes occur in unusually large numbers, a visitation of this nature having taken place in the southern counties of England in 1895, when large numbers were captured at Dover. In Ireland the species is very rare, the first recorded occurrence dating only from the closing quarter of last century.

A larger form of redpoll, said to have a larger beak, and known as *Linota holboelli*, extends from northern Europe across Siberia and perhaps North America. Of this race or species two examples are reported to have been taken many years ago in Norfolk, while a third was recorded from Ireland so recently as 1902, and another is reported from Tring.

In Greenland the group is represented by *Linota linaria rostrata*, which apparently only differs from the last by the more pronounced streaks on the lower surface, and is best regarded as a local race. A single specimen of this redpoll was recorded from Barra, Outer Hebrides, in 1896, a second two years later, and a third in 1900, while others have since been reported from Fair Isle.

With regard to the alleged relatively larger size of the beak in the last two forms as compared with the typical redpoll, it should be observed that this, at best, is a character of no very great importance, since it is well known that in all redpolls this appendage is longer in summer than in winter, when it becomes worn down by hard food.

Of another redpoll (*L. hornemanni*) five specimens were obtained in Fair Isle in 1905; while the species has been taken in Yorkshire at an earlier date, some of the specimens being, perhaps, referable to the American *L. hornemanni exilipes*.

Lesser Redpoll Although in that invaluable work, the British Museum *Catalogue of Birds*, the lesser redpoll is classed as a race

of the ordinary species, it is more generally regarded as a distinct species (whose alternative titles are *Linaria rufescens*, *Acanthis rufescens*, and *Cannabina rufescens*), and it is accordingly so ranked in the present work. It is the smallest of the British finches, measuring only about $5\frac{1}{4}$ inches in length; the cock in spring being characterised by the carmine (not blood-red) forehead and breast, and a brownish-buff wing-bar. In this sex the sides of the face, the loins, and the outer webs of the lateral tail-feathers show a carmine tinge, the rest of the upper-parts and the flanks are wood-brown streaked with darker brown, the throat and a patch in front of the eye are black, and the abdomen is white. Grey edges to the feathers veil the carmine for some time after the autumnal moult. This brilliant tint is restricted in the hen to the forehead, and is altogether absent in young birds.



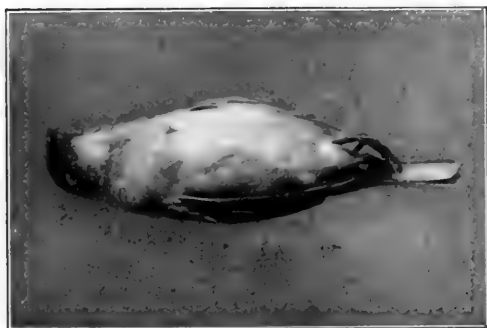
MOUNTED IN THE ROWLAND WARD STUDIOS

LESSER REDPOLL.

The lesser redpoll is a bird mainly confined to western Europe, although it breeds in the mountains of the south. It is a resident species in Scotland, the north of England, and Ireland; and has on several occasions been known to breed so far south as Derbyshire and Nottinghamshire; while in 1901 a nest was recorded from Sussex. In 1904 a pair of lesser redpolls nested in Norfolk while still in the immature brown plumage. At the approach of winter these birds migrate southwards; and not many years ago were common during that season in the alder and willow brakes of the Thames valley. The nest is the usual mossy cup; and the eggs, which but little exceed half an inch in their longer diameter, are bluish with red spots overlain by a small number of spots of purplish brown; the whole of the spots being in some cases aggregated round the larger end. A nest of this species has been taken in the isle of Barra, Outer Hebrides.

A solitary British record occurs in the case of the snow-finch (*Montifringilla nivalis*), a bird with the general appearance of a snow-bunting, of which an example was killed in Sussex in February 1905.

Sparrow (*Passer domesticus*). The members of the genus *Passer*, as well as the remaining representatives of the finch-group (*Fringil-*



SPARROW (FEMALE).

linæ), are distinguished from the foregoing species by the more swollen and inflated shape of the beak, in which the upper profile curves gradually towards the tip, while the line of the under surface also shows a characteristic difference. In the case of a bird like the sparrow, which has become established in almost every part of the world, and for

which no one has a good word to say, it would be a mere waste of space to devote a single word to its description and habits.

Tree-Sparrow (*Passer montanus*). From its more aggressive and dominant relative the tree-sparrow is distinguished by the circumstance that the plumage of the two sexes is identical (instead of markedly dissimilar) in colouring, by the crown of the head and the nape of the neck being distinctly reddish brown instead of

grey, as in the cock-sparrow, and by the double white wing-bar. In young birds the general tone is duller and the wing-bar tinged with buff.

The tree-sparrow, which is to a considerable extent local in its distribution, is spread over the greater part of Europe, whence it extends eastwards, as far north as the Himalaya,

into the Malay countries, China, and Japan. In Europe the range of this bird is being gradually pushed farther north, and now includes the

Färoe Islands, where the species was formerly unknown. In England the tree-sparrow is chiefly to be met with in the southern and eastern counties, notably in the New Forest, and is partially migratory in its habits. It also breeds locally in Ireland. The nest is less rough and untidy than that of the sparrow; while the eggs are slightly smaller and also darker, with a more uniform tone of coloration in a clutch.



MOUNTED IN THE ROWLAND WARD STUDIOS

TREE-SPARROW.



MOUNTED IN THE ROWLAND WARD STUDIOS

SERIN.

Serin (*Serinus hortulanus*).

The serin, or serin-finch (one

of whose titles is *Serinus serinus*), is a relative of the canary, and almost too rare a visitor to the United Kingdom to be accorded a definite

place in the British list. The general colour of the plumage of the upper-parts of the cock is pale brown with black streaks and yellow markings; the forehead, throat, and breast are yellow, with a shade of ashy on the lower part of the throat; the flanks are ashy brown with black streaks, and the rest of the under-parts is white. From Asia Minor through the other Mediterranean countries to central Europe and Denmark is the proper home of the serin, of which some seventeen examples were recorded in the British Isles during last century. Most of these were from the south and east coasts of England; but the list includes one Irish example, taken in 1893.

Of the handsome east European and Asiatic bird, variously known as the rose-finch, scarlet bullfinch, and scarlet grosbeak, and scientifically as *Carpodacus erythrinus* and *Pyrrhula erythrina*, four British examples were recorded during the nineteenth century, namely, one in Sussex in 1869, a second in the following year, a third in Radnorshire about 1875, and a fourth in Norfolk in 1892. Another example was taken in Fair Isle, Shetland, in 1906.

Crossbill (*Loxia curvirostra*).

The crossing of the tips of the two halves of the beak is a sufficient characteristic of the brilliantly coloured birds which take their name from this peculiarity. The group has a circumpolar distribution, extending in Asia as far south as the Himalaya. In the typical species, which is specially characterised by its uniformly brown wings, the crown, neck, and breast of the adult cock are dull vermilion, the loins a brighter shade of the same, and the middle of the back brown with a vermilion wash. In the hen green replaces the red; while young birds are greyish white tinged with yellow and streaked with dusky brown. It should be observed that the crossbill is an exceedingly variable bird both in size and colour. In length it ranges from $6\frac{1}{4}$ to 7 inches; while in the matter of colour every gradation from pale green to orange, and thence to dull vermilion, may be observed, the last-mentioned hue being apparently developed only in the most vigorous adults. In captivity the vermilion livery is never donned, and birds captured in this dress fade to yellow after their first moult in durance.

If the smaller and larger forms of brown-winged crossbills be regarded as races of *Loxia curvirostra*, the present species has a geographical distribution coextensive with that of the genus; its home being everywhere in the pine-forests on which it is dependent for food. Although generally a winter-visitor to the southern counties of England, where, however, it sometimes stays to breed, in Scotland

and the north of England the crossbill is a resident species ; and it has been observed even in the Outer Hebrides. As regards England, there are records of its having nested in almost every county ; and it breeds locally in Ireland, although not seen nowadays in the enormous flocks which occasionally made their appearance in former times.

Crossbills in winter, when they are comparatively tame, are usually seen in larger or smaller flocks ; and at this season they feed mainly on the seeds of the spruce-fir and larch, although in summer insects compose the chief nutriment of both adults and young. A cup-shaped nest, composed externally of twigs, farther in of moss and grass, with a lining of wool and feathers, is built in early spring, and usually placed high up in a pine or fir. In this are deposited four or five stone-coloured or bluish-white eggs, marked with red spots and more superficial purplish spots and scribbled lines ; the markings when unusually heavy being generally aggregated at the larger end, but otherwise more or less evenly distributed.

Of the larger form known as the parrot-crossbill, by some regarded as a distinct species (*Loxia pityopsittacus*), and by others as a race of the typical species, a considerable number of British examples have been recorded. Its true home is, however, northern Europe and western Siberia ; and it is reported to feed on the seeds of the Scotch fir in preference to those of the spruce or larch. A flight of crossbills is a truly striking spectacle.

The English crossbill is stated to differ from continental crossbills by the duller colouring of both sexes, while the beak is, as a rule, less elongated and less pointed, and often slightly higher. It has, however, been pointed out that since few crossbills breed regularly in England, it is unlikely that they form a special race. Nevertheless, the English bird has been named *Loxia curvirostra anglica*. In Scotland occurs



MOUNTED IN THE ROWLAND WARD STUDIOS

CROSSBILL.

a crossbill in some degree intermediate between the parrot-crossbill (*L. pityopsittacus*) and the common crossbill (*L. curvirostra*); its beak being very large, although not so high as that of the parrot-crossbill. It has been named *Loxia curvirostra scotica*. But in such a variable group the separation into races must be received with hesitation.

Barred Crossbill The barred (or two-barred) crossbill takes its name (*Loxia bifasciata*). from the presence of a couple of pinkish-white bars traversing the black wings, these bars being formed by the tips of the middle and greater wing-coverts, but the inner secondary quills being also white-tipped. In the cock the head, neck, and upper-parts are carmine-red, more or less mottled with black; while the lower surface is also carmine, passing into white on the abdomen. The hen, on the other hand, has the upper-parts greenish grey with a tinge of yellow, and marked with dusky brown, but the loins are pale yellow, and the general colour is paler on the throat and abdomen than elsewhere; while young birds are greyish, with little or no yellow, but abundant dark streaks. From its home in northern Siberia and the north of Russia this crossbill wanders at times into central Europe, whence some make their way to England, while a few even reach the Irish coast. In Scotland it appears to be unknown. Of the nearly allied white crossbill (*L. leucoptera*)—a North American bird—several examples are reported to have occurred in the British Isles.

Bullfinch Although with the same type of coloration as the (Pyrrhula redbreast, the bullfinch presents a remarkable contrast (*europæa*). to that species in that the brilliant livery is restricted to the cock; a similar feature characterising many of the finch tribe as contrasted with the warbler group. In the case of the present genus, it is, however, noteworthy that there are species in which the dull dress of the female of the type form is common to both sexes, so that the colouring of the cock in the British bird may be regarded as a feature of comparatively recent acquisition. In addition to the grey breast of the females, the bullfinches are characterised by the great inflation of the stout beak, which has a regular contour from base to tip. With the exception of an outlying Alaskan species, bullfinches are confined to northern Africa, Europe, and Asia north of the Himalaya.

The rose-vermilion under-parts, black crown and throat, and grey upper-parts suffice to characterise the cock bullfinch; which is, however, further distinguished by a white patch on the loins, white tips

to the greater wing-coverts, a white abdomen, and, very generally, a rose-vermilion outer web to the innermost secondary quill. With the exception of a slight tinge on the last-mentioned feather, the hen is devoid of the rose-vermilion of her partner, while the grey of the upper-parts is mingled with brown, and the under-parts are mauve-coloured. Young birds further lack the black cap to the head, and have the wing-bar ochery, and the under surface lighter, with a tinge of yellow.

Western and south-western Europe is the home of the bullfinch, which is replaced in Scandinavia and eastern Europe by the closely allied but somewhat larger Russian bullfinch, the type of the *Loxia pyrrhula* of the Swedish naturalist Linnæus. Needless to say, the bullfinch is a resident and common (much too common for fruit-growers) species throughout the mainlands of the British Islands. In the Outer Hebrides it has occurred at least once; and there was one record each for the Orkneys and Shetlands in the nineteenth century, but a second occurrence in Shetland was noted in 1902. The British bullfinch has been separated from the ordinary continental (as distinct from the Scandinavian) bird as *P. europæa pileata* on account of its smaller size and darker colour.

The bullfinch, especially in captivity, displays a marked tendency to melanism, several wholly black wild specimens having been recorded.

The inveterate propensity to pick out the buds of gooseberry and currant bushes in winter or spring (no matter whether they are sound or infested with grubs) is deservedly detested by gardeners, who would willingly forego such enjoyment as can be derived from the song of the cock if the species were exterminated. Twigs externally, and the main structure of small roots characterise the neatly built nest of the bullfinch, which at the proper season contains from four to half-a-dozen pretty blue eggs heavily spotted at the larger end with rusty spots, and likewise bearing superficial purplish-brown blotches and spots.

Although many reputed occurrences in the British Isles of the circum-polar pine-grosbeak, or pine-finch, *Pinicola* (or *Pyrrhula*) *enucleator*, have



MOUNTED IN THE ROWLAND WARD STUDIOS

BULLFINCH.

been recorded, the majority of these, according to a well-known authority, are untrustworthy; and since authenticated visitations are apparently very few, the species may be dismissed without further mention.

Hawfinch
(*Coccothraustes*
vulgaris).

The large and handsome, albeit soberly coloured, hawfinch (which appears in some works under the name of *Coccothraustes coccothraustes*) is the typical representative of the Coccothraustinæ, or third and last subfamily of the Fringillidæ. The distinctive feature of this group is to be found in the backward extension of the horny sheath of the upper half of the beak beyond the front rim of the bony socket of the eye; while the inferior border of the lower half of the beak is nearly straight.



HAWFINCH (MALE).

The conical beak and the sickle-shaped tips of the inner primary quills distinguish the hawfinch from all other British birds. The cock is characterised by a narrow line of black feathers encircling the root of the beak, joining a large black patch on the throat; the rest of the head being orange-brown, becoming paler and brighter on the forehead; the hind part of the neck is ashy grey and the

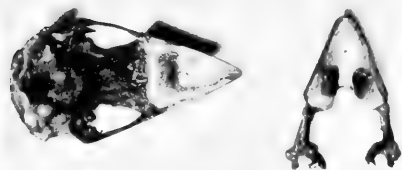
back chestnut-brown; while the middle wing-coverts are mostly white, and the under-parts nutmeg-brown. A duller tone distinguishes the hen, which has little or no black round the upper part of the beak, a smaller throat-patch, and a brown tinge on the middle wing-coverts. Young birds differ from the hen by their ashy-brown colour above, and the dirty white, clouded with dark brown spots, of the lower surface.

A peculiarity of the hawfinch is the presence on the upper and lower surfaces of the inside of the beak of certain large horny bosses, evidently adapted to play the part of millstones in crushing the hard hawthorn-seeds and stones of fruit on which the bird chiefly feeds.

Europe, together with northern Africa, and Asia as far as Asia Minor and Turkestan, constitute the geographical range of the hawfinch. This bird is resident throughout the midland, southern, and

eastern districts of England, though apparently migratory to some extent in autumn; and it also breeds in some Welsh counties. To Ireland it is only a casual visitor: it is, however, resident in the eastern

and southern districts of Scotland, but not apparently on the west coast, although it has recently been recorded from Dumfriesshire. In the Hebrides, Shetlands, and Orkneys it is seemingly unknown.



SKULL AND LOWER JAW OF HAWFINCH, SHOWING CRUSHING KNOBS ON THE PALATE.

Hawfinches are much more common in the home counties of England than is generally supposed; and before the times of bird-preservation eggs could be obtained in almost any numbers from

the boys in many parts of Hertfordshire. The shy and retiring habits of the bird account for its being so seldom seen. Although larger, the nest is of the general type of that of a bullfinch; and the four to six large and handsome eggs are generally greyish drab, with blotches and scribbled lines of grey and blackish brown, of which the latter are the more superficial.

Greenfinch (Ligurinus chloris). Although sometimes included in the same genus as the hawfinch, under the name of *Coccothraustes chloris*, the

greenfinch is now more generally made the type of a genus by itself, either with the title here employed, or as *Chloris chloris*. In the cock greenfinch the forehead, wing-coverts, and loins are golden green, the outer webs of the primary wing-quills yellow, the rest of the upper-parts olive-green clouded with hair-brown, and the under-parts greenish yellow inclining to greyish on the flanks. In the hen, which is inferior in size and duller in colour,



MOUNTED IN THE ROWLAND WARD STUDIOS

GREENFINCH (FEMALE).

the head and upper-parts are hair-brown tinged with golden green on the wing-coverts and loins; only the bases of the outer webs of the primary quills are yellow, and there is little or no yellow at the root of the tail; while the under surface is pale brown with a tinge of golden green on the abdomen. Young greenfinches are pale brown streaked with darker brown above, and have the bases of the outer webs of the primaries yellow, and the under-parts paler than in adult hens, but never decidedly streaked; the sexes may be distinguished at this age

by the yellow at the root of the tail in cocks. Owing to the wearing-away of the dull edges of the feathers, the plumage of the adults is more brightly coloured in spring than in autumn.

The greenfinch may be considered a hardy bird, as its breeding-range in Scandinavia extends at least as high as the head of the Baltic, declining, however, as usual, by about 5° when the Urals are reached. Below these latitudes the whole of Europe may be included in the range of the species, which extends as far east as Persia and Turkestan. Greenfinches from southern Europe are, however, smaller and more brilliantly coloured than the northern birds, and form a separate race,



MOUNTED IN THE ROWLAND WARD STUDIOS

GREENFINCH (MALE).

L. chloris aurantiiventris. As might have been expected from its northern range elsewhere, the greenfinch is to be found practically everywhere in the British Isles, although it appears to be only a winter-visitor to Orkney, and is not recorded from the Flannan Islands in the Outer Hebrides.

Although from the fact that it feeds its young chiefly on caterpillars, at which season it also consumes numbers of these pests on its own account, the greenfinch may be credited with doing a certain amount of good, yet in gardens it is a mischievous bird, although less harmful than the bullfinch. The nest of moss, strengthened with a

few small roots and twigs, and lined with hair and a sprinkling of feathers, may be found alike in garden shrubberies and in woods. The four to six eggs are generally distinguishable from linnet's eggs, but when they are smaller than usual, it is difficult to distinguish between the two.

Grey Shrike (*Lanius excubitor*). The shrikes, or butcher-birds, represent a large and widely spread family (Laniidæ) of somewhat uncertain serial position, of which the definition is by no means an easy matter, although the British forms are easily characterised. There are ten primary wing-quills and twelve tail-feathers, and there is but a single annual moult; the nostrils, which are clear of the line of the forehead, are more or less thickly overhung by bristles and bristly hairs; and in the more typical forms the beak is strongly hooked, with the cutting-edge of the upper half strongly notched. Very distinctive of the group is the cross-barring of the plumage of the nestlings, generally on both upper and lower surfaces. The members of the typical genus *Lanius* range over the greater part of the world, exclusive of Australasia and South America. All are insectivorous.



MOUNTED IN THE ROWLAND WARD STUDIOS

GREY SHRIKE.

In the grey shrike, which measures about $9\frac{1}{2}$ inches in length, the general colour of the plumage of the upper-parts is pearl-grey, and that of the lower surface white; a line through the eye, the greater portion of the wings, and most of the tail-feathers are, however, black; while, on the other hand, the forehead, a line above the eye, the scapulars, the bases of the wing-quills, and the greater part of the outer tail-feathers are white. The plumage of the hen is duller in tone, with the breast more or less thickly marked with crescentic greyish

bars ; while young birds are greyish brown above, and more thickly barred below.

An inhabitant of southern and eastern Europe, ranging in summer to the extreme north of Scandinavia, the grey shrike is, as a rule, only an autumn-visitor to the British Isles, where, however, it has been occasionally seen in summer, although never known to nest. To England it is a regular visitor, but it appears to be less common in Ireland and Scotland, although it has been recorded from the Outer Hebrides. The general habits of this handsome species are similar to those of other members of the group ; the formation of a "larder" of impaled insects, young birds, and small mammals being the most noteworthy trait.

Pallas's grey shrike (*Lanius sibiricus*, or *L. major*) is a slightly larger species or race inhabiting northern Russia and Siberia, distinguished from the last by the presence of a patch of white on the upper tail-coverts and the smaller amount of white on the wings, which forms a single, in place of a double bar when the latter are closed. While one writer states that this species in some autumns and winters appears to be as common in the British Islands as the last, a second admits only four records of its occurrence during last century. Grey shrikes with a single wing-bar were taken in Fair Isle in 1907.

Of the lesser grey shrike (*Lanius minor*), a south European species visiting northern Africa in winter, seven examples were recorded in England during the nineteenth century, all from the southern and eastern counties ; the time of year ranging from May till November. An eighth specimen was recorded from Norfolk in 1902, and a ninth from Sussex in the autumn of 1905. In addition to its somewhat inferior size (length $8\frac{1}{4}$ inches) this species may be distinguished from the ordinary grey shrike by the much shorter first primary quill of the wing, and when adult by the black forehead.

A specimen of the southern grey shrike (*L. meridionalis*) was reported to have been taken in Essex in 1875 ; and one of the masked shrike (*L. nubicus*) was shot in Kent in the summer of 1905. The latter is a native of south-eastern Europe.

Red-backed Shrike (*Lanius collurio*).

The red-backed shrike, or butcher-bird, represents a second section of the genus, distinguished by the prevalence of chestnut in the colouring. In the cock of this species the crown of the head and nape of the neck are grey, and the space in front of the eye and the ear-coverts black ; the back is chestnut ; the tail-feathers, with the exception of

the middle pair, which are wholly black, are white at the base, and the under-parts are white with a pinkish tinge. In the hen the upper-parts are russet-brown, with a white streak over each eye, and the under-parts white with crescentic dark brown bars. Young birds are ashy brown above, with a warmer shade on the back and wing-coverts, which are marked with imperfectly crescentic dark brown bars, while the flanks and a band across the upper portion of the breast are dull white with distinctly crescentic dark markings.

In continental Europe the butcher-bird, as this species is popularly termed in England, ranges as far north as the head of the Baltic, and its breeding-area embraces all to the southward with the exception of the eastern Mediterranean counties, where the mountains alone afford suitable breeding - resorts. Eastwards the species ranges through south-western and central Asia to the Altai; while the winter-range includes the greater part of Africa.

A common summer-visitor to the southern districts of England, the butcher-bird gradually becomes less and less abundant as we proceed northwards, till in Scotland, where, however, it occasionally nests in the south-eastern counties, it may be regarded as a rare bird. Only one instance of its occurrence in Ireland has been recorded up to the date of writing this passage. It is known from Fair Isle.

The species is one of the latest of the summer-migrants to arrive in England, which it is suggested may be due to its habit of feeding so largely upon the young of other birds. Beetles and bees constitute, however, a considerable portion of its food; and it is stated that in some districts the presence of the species depends upon the abundance of these insects. Such insects are captured on the wing, in flycatcher-fashion; the bird returning to its perch after each successful sally, and in some cases proceeding to impale its victim on a thorn alongside other insects and young birds suspended in similar manner. The peculiar cry, which has been compared to the word *chack*, generally



MOUNTED IN THE ROWLAND WARD STUDIOS

RED-BACKED SHRIKE (MALE).

betrays the whereabouts of birds of this species ; but it is stated that the cock has also a song of its own.

Owing, it is said, to the practice of cutting hedges, butcher-birds are reported to be less common nowadays in the south of England than formerly ; as with the disappearance of the overgrown old-fashioned hedges they are at a loss to find suitable nesting-sites. Moss and roots form the main structure of the loosely-built nest, which is lined with grass and wool, together with a small amount of hair. In this are laid from four to six handsomely but variably coloured eggs, the ground-colour ranging from buff to reddish cream, and from greenish white to pale green. In the buff phase the spots, which sometimes form a ring, are rusty, with underlying ones of grey ; while in the green type the markings are brown, with a violet tinge in those of the deeper layer.

Woodchat
(**Lanius**
pomeranus).

The last British representative of the group is the wood-shrike, often known scientifically as *Lanius rufus*. In the cock of this species the crown and nape are chestnut-red ; a stripe at the root of the beak, the scapulars, the upper tail-coverts, and a band across the otherwise black primary quills, are white ; the space in front of the eye, the ear-coverts, and the sides of the neck and back are black ; the loins are grey, passing into the white of the tail-coverts ; and the under-parts are buffish white. Hens are duller in colour, blackish brown replacing the black. Young birds are paler than their female parents, the scapulars, margins of the wing-coverts, and the loins being sandy buff ; while there is no black on the forehead, and the lower surface is white with dusky crescentic bars.

A summer-visitor to southern and central Europe from Africa, the woodchat rarely reaches England, the number of recorded instances of its occurrence (including some that are doubtful) up to the year 1892 being between thirty-five and forty, and most of them relating to the southern and eastern counties. In Scotland it appears to be unknown, and there is only one Irish record. The species is, however, stated to have nested in the Isle of Wight about the year 1860, and a clutch of eggs in the Dorset Museum is reported to have been taken in Dorsetshire, while there is also a statement as to nestlings having been obtained in at least one other county.

The general habits of the species resemble those of other shrikes ; the cock having a harsh monosyllabic cry, several times repeated, and also a low song in the nesting-season.

Waxwing
(*Ampelis*
garrulus).

Since the handsome waxwing—the typical representative of the family Ampelidæ—differs from all other British birds by the presence on the tips of most of the secondary wing-quills of drop-like expansions

comparable in appearance to red sealing-wax, no description of either the species or the family is requisite on this occasion. The function or object of this peculiar structure feature does not appear to have been ascertained. Waxwings, whose long “whiskers” and puce-coloured plumage, with bands of yellow on the wings and tail, render them unmistakable at the first glance, are circumpolar birds, breeding within the Arctic Circle, and visiting central and eastern Europe in autumn and winter. During these migrations, a certain number of these birds frequently visit Great Britain, making their appearance most commonly in the north-eastern and eastern districts, where they occasionally arrive in large flocks. It is said, indeed, that scarcely a year passes without one or more waxwings being seen in Great Britain; and a pair was observed in Shropshire so recently as January 1906.



WAXWING (MALE).

Waxwings are active birds, associating in companies, and feeding in summer chiefly on insects, but in winter resorting from necessity to a diet of berries. As they are remarkably silent, the name of “chatterer,” by which they are sometimes designated, can scarcely be considered appropriate.

Golden Oriole
(*Oriolus galbula*).

The golden oriole, typifying the family Oriolidæ, is a bird as unmistakable and easy of recognition as the waxwing, and, strictly speaking, therefore requires no description; but since there is a marked difference in the colouring of the two sexes, a brief diagnosis may be advisable. The oriole family is confined to the Old World, and apparently related to the starlings (to be considered next), with which its members agree in that the plumage of the nestlings is streaked; they differ, however, in having well-developed bristles at the gape of the beak. From the crow tribe, orioles differ not only by the colouring of the plumage of both nestlings and adults, but by having the cutting-edges of the

upper half of the beak notched in the same manner as that of a thrush.

The golden oriole takes its name from the bright golden yellow of the greater part of the plumage of the adult cock ; this being relieved by the blood-red eye, red beak, black stripe in front of the eye, and black wings (the coverts edged with pale yellow) and basal half of tail-feathers. Hens are greyish white below, with black streaks on the breast and throat, but when very aged tend to assimilate to their mates in colour ; young birds are similar in colour to normal hens.



MOUNTED IN THE ROWLAND WARD STUDIOS

GOLDEN ORIOLE.

Although the species appears to be a regular spring - visitor to Cornwall and the Scilly Isles, the flute-like notes of the golden oriole are unfortunately but seldom heard in most parts of England ; and when a specimen does make its appearance, its conspicuous plumage renders it an object of pursuit to those gunners who defy the laws for bird-protection. Long before these were in force a considerable number of instances of the oriole nesting in England were, however, recorded ; the counties where this has occurred including Devonshire, Dorsetshire, Kent, Norfolk, and Suffolk. To Scotland this bird is a much more rare visitor, and such instances as have occurred have been chiefly in the southern districts. In Ireland the species occasionally visits the eastern and southern counties.

The range of the oriole extends from Europe as far east as the Altai, the species being replaced in Turkestan and Afghanistan by the allied Indian oriole, *O. kundu*, which has more black in the neighbourhood of the eye. In general habits the oriole is very thrush-like. The nest, which is made of strips of bark, lined with grass, is suspended by bark-strips from the forked branch of a tree—preferably an oak; and the four or five eggs are whitish, or white suffused with pink, heavily spotted with chocolate-brown or black.

Specimens of certain members of the American family of hang-nests (Icteridæ, often known as American orioles), such as the red-winged starling (*Agelæus phæniceus*), the rusty grackle (*Scolecophagus ferrugineus*), and the meadow-starling (*Sturnella magna*), have been killed in the British Islands, but by an eminent authority all such instances are regarded as “escapes.”

Starling
(*Sturnus vulgaris*).

With the starling, which apparently takes its name from the “star-spangled” plumage of the adult cock, we reach a family (Sturnidæ) of Old World birds whose members differ from the foregoing groups by their habit of walking, in place of hopping, when on the ground. In the more typical members, at any rate, of this family (for there is some difference of opinion as to the limitations of the group) the wing has ten primary quills, of which the first is very small, and the tail twelve feathers; the nostrils are clear of the line of the forehead; bristles are altogether lacking at the gape; and in most cases the plumage of the nestlings is streaked. There is only one moult—in autumn. Sharply pointed wings and swollen nostrils are also very characteristic of the group, all the more typical members of which lay uniformly coloured pale blue or bluish-white eggs in holes in trees or rocks or in buildings.



MOUNTED IN THE ROWLAND WARD STUDIOS

STARLING.

The starling is the typical representative of a comparatively small genus. In spring the cock has the beak yellow and the plumage black, brightly glossed on the head with green, and on the back with

bronze and purple, while that of the under-parts shimmers with iridescent reflections of steely blue and green. After the autumnal moult the colour of the beak changes to dark horn, and the plumage becomes spangled above with buff and below with white, owing to the development of spots on the tips of the new feathers, which become worn away during the winter, thus giving rise to the spring-livery. The hen is rather duller in colour than her mate, and retains a certain amount of spotting in spring; but young birds differ from both parents in their brown plumage, fading almost to white on the abdomen.

Although only a winter-visitor to the Mediterranean countries, the starling is distributed all over Europe; and its range is definitely known to extend as far east in winter as Egypt and Persia. In the Himalaya and some parts of Central Asia it is, however, replaced by allied species, such as *S. humei* and *S. porphyronotus*, which visit India in winter. In the British Isles starlings are to be met with everywhere, and at the present day in increasing numbers, partly owing to the enormous flocks which arrive yearly on the eastern coasts in autumn. This is more specially noticeable in Scotland, where these birds now abound in districts to which they were formerly stragglers or unknown. The same increase is noticeable even in the Outer Hebrides, which, although an ancient habitat of the species, has of late years participated in the enormous augmentation of numbers. Whether this increase in the Hebrides is to be attributed to the indigenous birds, or to migrations from the mainland, does not appear to be ascertained.

To fruit-growers this vast increase in the number of British starlings is an unmitigated evil; and complaints are still louder in Australia, where these birds have been introduced. It appears that some years ago a few pairs of starlings were taken to Australia for the destruction of insects, and were protected by law. They increased rapidly and are now to be counted by thousands. In Melbourne it is stated that they have completely changed their habits, and have become a serious pest to fruit and flowers. So destructive have they become to the fruit-industry that the regulations framed for their protection have been repealed, and energetic steps are advocated for their extermination. From many districts it is reported that fruit-growing will have to be given up unless radical measures are taken. Valuable insect-eating birds, such as kingfishers, diamond-birds, tree-swallows, and tree-creepers, are being driven out of their nesting-places in tree hollows by swarms of starlings.

On the other hand, it has to be admitted that in Britain starlings destroy a number of mischievous insects and grubs.

The starling constructs a rough nest of straw and grass, with an imperfect lining of wool and feathers, either in the hollow arms or trunks of trees, in holes in walls, under roofs, or even in chimneys ; and in this are laid from four to seven of the well-known pale blue eggs, which are about the size of those of a thrush. At least two clutches may be laid in a season. The enormous flocks in which starlings congregate in autumn, and the regular aerial evolutions which they then perform, are too familiar to need further mention.

A specimen of the Mediterranean black starling (*Sturnus unicolor*) was shot in Cheshire in the autumn of 1905.

Rosy Starling (*Pastor roseus*).

The rosy starling, or, as it is often called, the rose-coloured pastor, whose breeding-range includes south-eastern Europe and south-western and Central Asia, alone represents a genus distinguished from *Sturnus* by the shorter, deeper, and more vaulted beak, as well as by the crested head. In



Mounted in the Rowland Ward Studios

ROSY STARLING (MALE).

the cock, which has the crest very large, the head, neck, and throat are glossy black tinged with violet, and the wings and tail greenish black, the rest of the plumage being rose-pink ; while the beak is rose-coloured, and the eye deep reddish brown. Hens differ by the less

bright tone of the plumage, and the much smaller crest. The latter is altogether absent in young birds, whose plumage on the upper-parts is greyish brown, striped with a darker tint on the crown of the head ; the throat is white, with indistinct dusky stripes, and the rest of the under-parts dull white tinged with buff, deepening on the flanks to ashy brown.

This starling is an irregular visitor during summer and autumn from the south-east to the British Islands (inclusive of Orkney and Shetland) ; but although specimens have been observed in the middle of summer, no instance of its breeding has been recorded.

Raven
(*Corvus corax*). With the usual sable livery of the more typical representative of the crow-family, or Corvidæ, the raven occupies the proud position of being the largest of the British perching birds, measuring about 25 inches in total length. It is thus easily identified, and therefore needs no detailed description. It should, however, be mentioned that hens are somewhat inferior in point of size to cocks, and are further distinguished by a smaller development of the pointed feathers on the throat, while the purplish-blue reflections of the wholly black plumage are likewise somewhat less intense. In young birds this relative dulness of the plumage is still more strongly marked.

Before proceeding further a few lines may be devoted to the leading characteristics of the Corvidæ as a whole, which are generally regarded as the most highly developed of all perching birds, and therefore of birds in general. In what this superiority specially consists it is not very easy to define, but reference may be made to the high grade of intelligence of these birds, their compact and beautifully formed plumage, strong wings and tail, powerful beak, overshadowed at the base with plumes of feathers, their stout limbs, adapted for walking in place of hopping ; and, in brief, their perfect adaptation in every respect to their particular mode of life.

From the starlings the members of the crow-tribe differ markedly in that the plumage of the nestlings is of the same type, as regards colouring, as that of the adult females, although paler ; and also in the nostrils being completely hidden by feathers and bristles. The two sexes are more or less completely alike in colouring, and there is but a single annual moult, taking place, as usual, in autumn. With the exception of Australasia (in some parts of which it is replaced by the Paradiseidæ, or birds-of-paradise, which have been regarded as an allied group), and Oceania, the family has an almost

cosmopolitan distribution ; but it is less strongly represented in America than in other parts of the world, its only members inhabiting the tract from the Isthmus of Darien to Uruguay being a few allied to the jay. Black, or, more rarely, black-and-white, is the predominant colour among the typical group. Some crows have, however, a large amount of grey in their colouring ; and in certain Indian species this is replaced by puce, which forms the ground-colour of the typical representative of the jays. Of the latter birds blue, either on the wings or elsewhere, is very characteristic ;



MOUNTED IN THE ROWLAND WARD STUDIOS

RAVEN.

some of the members of this group being indeed brilliantly coloured, long-tailed birds. None of the Corvidæ are songsters, their notes being of a harsh type, partaking in many instances either of the nature of a croak or a scream.

From the greater part of the British Isles the harsh "croak" of the raven has long since disappeared for ever ; but this fine species is still resident in some of the wilder parts of England, where its favourite haunts are tall cliffs by the sea, and more rarely inland cliffs. In Scotland, more especially the western districts, ravens are, however, much more numerous ; and in Shetland and the Outer Hebrides they are still quite common birds. In North Uist, despite active persecution on the part of keepers, as many as six-and-twenty ravens have

recently been seen round the carcass of a sheep. In Ireland, where the species has become rare, except in the extreme west, ravens build chiefly on sea-cliffs in the wilder districts, but to some extent also in the mountains of the interior. The range of the species includes a large portion of the northern hemisphere, extending in America as far south as Mexico and Guatemala, in Europe to the Mediterranean countries, and Asia to the Himalaya and north-western India.

Ravens, which pair for life, occupy the same nest year after year, and commence repairing the old structure as early in the season as January, while the eggs—from three to six in number—are laid in the latter part of February or the commencement of March. The eggs themselves, which average nearly 2 inches in length, are of the usual crow-type, generally having a greyish or bluish-green ground heavily blotched with chocolate-brown. Like that of the family in general, the nest is a huge untidy structure of sticks, mingled, in this instance, with heather, and thickly lined with wool or some equally soft substitute. Cliffs form the favourite building-sites; but the nest may be constructed in a tall tree in rook-fashion. In the opinion of keepers and shepherds the loss inflicted by ravens on lambs, kids, fawns, poultry, and game altogether overbalances any good these birds may do by the destruction of rats, moles, and other vermin, and their consumption of dead carcasses and other offal. Consequently, the species is incessantly harried and persecuted in almost all parts of the British Isles where it still survives.

Crow

(*Corvus corone*).

Measuring not more than 19 inches in length, the crow, or carrion-crow, as it is generally called (the *Corone corone* of some ornithologists), is practically a miniature raven, but distinguished by the circumstance that the first primary quill, although longer than most of the secondaries, is inferior in length to the innermost feathers of the latter series. The plumage is black, tinged on the head, neck, and throat with green, and glossed with purple on the upper-parts generally; hens are slightly duller in colouring than their mates, and young birds may be recognised by the pale flesh-colour of the interior of the mouth.

The typical, or black crow is very closely related to the grey crow, to be considered next, and since some difference of opinion obtains among naturalists as to the nature of the relationship existing between these two birds, we may depart from the rule hitherto followed in this volume, and make the following quotation from Professor A. Newton's *Dictionary of Birds*:—

"Both these [birds] inhabit Europe, but their range and the time of their appearance are very different. Without going into minute details, it will suffice to say that the former is, speaking generally, a summer-visitant to the south-western part of this quarter of the globe, and that the latter occupies the north-eastern portion—an irregular line drawn diagonally from about the Firth of Clyde to the head of the Adriatic about marking their respective distribution. But both are essentially migrants, and hence it follows that when the black crow, as summer comes to an end, retires southward, the grey crow moves downward, and in many districts replaces it during the winter. Further than this, it has now been incontestably proved that along



MOUNTED IN THE ROWLAND WARD STUDIOS

CROW.

or near the boundary where these two birds march, they not infrequently interbreed, and it is believed that the hybrids, which sometimes wholly resemble one or other of the parents, and at other times assume an intermediate plumage, pair indiscriminately among themselves, or with the pure stock. Hence it has seemed to some ornithologists who have studied the subject, that these two birds, so long unhesitatingly regarded as distinct species, are only local races of one and the same dimorphic species."

Over a large part of Great Britain, especially the eastern counties of England and many districts of Scotland, the crow, owing to incessant persecution by gamekeepers, is now a rare, or indeed almost unknown bird, as is likewise the case in Ireland. Although generally supposed to differ from the rook by associating in pairs,

each of which has a separate nesting-haunt (as indeed is commonly the case), crows sometimes collect in companies in rook-fashion. The nest is generally placed in a tree standing by itself, but may be built on a cliff, or, in very rare instances, on the ground. The eggs, of which from three to six go to a clutch, are usually laid in April, and are said to have a bluer ground than those of the grey crow.

Crows are terrible enemies to young birds and eggs of all kinds. From the fact that large numbers of broken egg-shells are to be met with on the shores of many Scotch lakes, it has been inferred that crows prefer to enjoy their booty by the water-side; but when they have young of their own, the stolen eggs are carried to the nest.

Grey Crow The grey, hooded, or Royston crow (the *Corone*
(*Corvus cornix*). *cornix* of some authors) is broadly distinguished
from the other British representatives of the group
by the fact that while the head, throat, fore part of the neck, wings,



MOUNTED IN THE ROWLAND WARD STUDIOS

GREY CROW.

tail, and the feathers on the legs are black, the remainder of the plumage is ashy grey. No difference in the colouring of the two sexes is noticeable, but young birds are of a duller tone than their parents.

As the relationship of this species, or race, to the ordinary crow and its distribution have been already discussed, while the general habits of the two birds are identical, little more need be stated in regard to the present species. It may be mentioned, however, that

large numbers of grey crows make their appearance in autumn on the east coast of England (where the black crow is of rare occurrence), whence they distribute themselves over the country for the winter. On the other hand, grey crows commonly breed in certain districts of England and Wales, as well as in Ireland and Scotland; and it is noteworthy that the present species nests much more frequently on cliffs than is the case with its sable brother. Both black and grey crows (as well as rooks) feed largely on freshwater mussels, whose shells they break by carrying them to a height and letting them fall on rocks or stones; and when it arrives on the east coast of England the present species subsists to a great extent on cockles, which are treated in the same unceremonious manner.

Rook (*Corvus frugilegus*).

Although frequently in England included under the generic title "crow," the rook is a very distinct species, characterised when adult by the presence of a bare, rough, grey area round the root of the beak due to the shedding of the short feathers with which this region is clothed, in



MOUNTED IN THE ROWLAND WARD STUDIOS

ROOK.

immature birds. Owing to this peculiarity the rook is by some ornithologists made the type of a genus by itself, under the name of *Trypanocorax frugilegus*. Occasionally the feathers at the root of the beak, as well as the bristly feathers over-arching the nostrils, are retained in the adult, but in such cases the birds may be distinguished

from crows by the steely blue reflections on the plumage of the upper-parts, and the more slenderly formed beak. The same features serve to distinguish young rooks from young crows ; a further point of difference being that in the former the interior of the mouth is slate-coloured.

The range of the rook comprises the greater part of northern and central Europe, extending in Scandinavia as high as the Arctic Circle, but gradually declining as we proceed eastwards, where in Asia it extends as far as Turkestan and the valley of the Irtysh, and in winter includes the north-western provinces of India, Persia, and Asia Minor.



HEAD OF YOUNG ROOK.

At the same season rooks resort to the Mediterranean countries farther west. Despite the enormous numbers in which rooks are to be found throughout almost the whole of the British Isles, large arrivals annually make their appearance for the winter from the east. Moreover, the species seems to be gradually extending its range, having of late years taken to nesting in the Outer Hebrides, although it does not yet appear to have done so in Shetland.

Gregarious habits are at all times essentially characteristic of the species, which is so thoroughly well known that brief notes in regard to its habits will suffice. "Rookery" has now become a term for all large breeding colonies of animals—human or otherwise ; and it is stated that these birds will never build in trees which are not thoroughly sound and safe. It has been noticed that when a pair of rooks attempts to build apart from the rest in a tree previously unoccupied, the other members of the colony frequently set to work to destroy the new settlement. In 1905 an event of this nature took place in the churchyard of Christ Church, Skipton. In this instance a pair of rooks had built in a tree overhanging a street, and the female was incubating her eggs. While thus engaged she was attacked by the other rooks, which pecked her to death, throwing the body, together with the broken eggs and the ruined nest, to the ground.

Although ragged and untidy when viewed from below, a rook's nest is usually a very well-built structure, which has been compared to an overgrown blackbird's nest, and is formed of twigs and turf, with a lining of fine roots and straw. Three to five is the usual number of the eggs.

Two problems, it has been remarked, remain for solution in connection with the rook. Firstly, the reason for the casting of the feathers at the root of the beak; and, secondly, whether these birds are advantageous or harmful to the agriculturist. That they consume enormous quantities of worms, wire-worms, the larvæ of cockchafers, and other grubs, is freely admitted; on the other hand, they take large toll on agricultural products. Owing to the immense number of these birds, the question of their utility or otherwise is obviously one of great practical importance, which, once for all, should be definitely settled. It has been stated that while in England the preponderance of opinion is in favour of their utility, in Scotland the opposite view is entertained. The well-known proficiency of Scotsmen in all matters connected with agriculture and horticulture should render their opinion on this subject of great weight and importance.

Jackdaw
(**Corvus**
monedula).

The last of the British Corvidæ which can be included in the typical genus is the small species whose proper title is "daw," but to which the familiar prefix "Jack" has become so firmly attached as to be now inseparable.

Even this species is by some ornithologists regarded as worthy of generic separation, and is then known as *Colæus monedula*. With a length of not more than 14 inches, the jackdaw is specially characterised by having the otherwise black plumage relieved by a somewhat collar-shaped grey area extending downwards from the sides of the head on to the back and the sides of the neck. Hen jackdaws are rather smaller than cocks, with the grey colour somewhat less conspicuous; while in young birds the grey area is still more restricted. Very characteristic of the species at all ages are the white eyes.

The greater part of Europe comes within the range of the jackdaw, which breeds in Norway as far north as Trondhjem in about latitude 64°. Eastwards the species is found as far as the Yenisei valley in Siberia, where, however, it does not appear to range farther north than about latitude 56°; but in south-western Europe it is replaced by an allied species, although at the western end of the Mediterranean it reappears in Algeria. In the British Islands, although distributed very widely, it is to a great extent local, being more or less completely

absent from many districts apparently well suited to its habits. In the Orkneys a few pairs have been long known to breed, but it is only recently that the species has taken to nest in small numbers in the Outer Hebrides in the neighbourhood of Stornoway. To Shetland, however, it appears to be only a straggler. In Ireland jackdaws are



MOUNTED IN THE ROWLAND WARD STUDIOS

JACKDAW.

stated to be on the increase; but although breeding in most of the counties of the mainland, they do not as a rule nest on the islands of the west coast.

As regards general habits, jackdaws are very similar to rooks, with the flocks of which they frequently associate. Their favourite nesting-places are, however, towers or other tall buildings, or cliffs near the sea; but instances are on record of a considerable number building in company in tall trees. The nest is of the usual crow-type, although much less neatly built than that of the rook. Two instances—one at Eton, and the other at Hillington, in Nor-

folk—of the nest being built up to a height of ten feet or more in order to reach a window or other aperture, are on record. The number of eggs in a clutch, as in the family generally, ranges from three to six. White jackdaws are by no means very uncommon—much less rare than either white rooks or white crows.

Jay
(*Garrulus*
glandarius).

The handsome but noisy jay is the only British representative of a genus as widely distributed as *Corvus*, and distinguished by the shorter wings and totally different type of colouring of its members.

As regards the British species, the brilliant patch of bright ultramarine blue, barred with black and white, on the wings, renders it recognisable at the first glance. Practically, this wing-bar is a sufficient diagnosis for the purposes of the present work, but the following additional particulars may be given, as the blue patch is common to all the Old World jays. The crown, then, of the short-crested head is white striped with black; the loins are white; a patch on each cheek, the wing-quills, with the exception of the outer margins of the primaries

and the bases of the secondaries (which are white), and the tail-feathers, except at their bases, where they tend to bluish grey and show slight barring, are black; the rest of the upper-parts is russet-fawn, or puce-coloured, while the lower surface is buff. In the adult the eyes are of a blue very similar to that of the wing-patch, but in young birds are brown, this being the only colour-difference between the latter and their parents.

Associating in pairs, the jay, unlike the jackdaw, appears to be diminishing in numbers in England, and perhaps in the British Islands generally, owing to the persecution to which it is subjected at the hands of gamekeepers. That such persecution is not undeserved will be apparent to all who are acquainted with the egg-stealing propensities of this bird and its fondness for young partridges and pheasants, to say nothing of the nestlings of other species. In Scandinavia the jay ranges as far north as the Arctic Circle, but in the valley of the Volga its limits in this direction are a few degrees less. Somewhere to the east of that river it is replaced by an allied species, and it does not extend into north Africa or south-eastern Europe. In Great Britain the species is to be met with in most districts, where it is resident throughout the year, although it is stated that a certain number of jays migrate towards the east coast of England, while others in certain seasons join them from abroad. In Scotland jays are believed to be extending their northern range in some districts, such as Inverness-shire, while in Ayrshire and Dumfriesshire their numbers have largely diminished. From Shetland and the Outer Hebrides the species, except for an occasional straggler, is absent. In Ireland jays are now found only in the south-eastern districts forming the basins of the rivers Suir, Nore, and Barrow, if we except a few stragglers which wander from their regular habitat to the adjacent counties.



MOUNTED IN THE ROWLAND WARD STUDIOS

JAY.

Persecution has probably taught the jay, which is now one of the most difficult of birds to approach, a lesson, although, except during

the breeding-season, when it is silent, its harsh scream may often be heard in the game-coverts which form its favourite resorts. The nest, which may be placed either in a tree or a bush, is built of twigs and roots with a lining of finer roots; and at the proper season contains a clutch of from three to six eggs, each averaging about $1\frac{1}{4}$ inches in length. Usually the egg is greyish with numerous small pale brown specks, and thus very different from the heavy blotched type distinctive of the genus *Corvus*. Rarely the eggs may be olive-brown all over, with few or no markings. In addition to its partiality for eggs and young birds, the jay is very fond of acorns, and consumes large quantities in autumn.

British specimens of the jay are stated to differ from Continental examples—especially from those of eastern Europe—by the more uniform rufous upper-parts, there being little or no greyish or slaty tinge on the back. Although the difference is slight and only noticeable when a series is compared, it has been deemed sufficient to justify the separation of the British jay as *Garrulus glandarius rufitergum*. The Continental *G. glandarius typicus* seems to visit the British Isles only occasionally.

Magpie As in the analogous case of the jackdaw, the magpie
(*Pica rustica*). has had its proper title ("pie") lengthened by the prefix of a familiar name which has now become indissolubly welded to the original designation. The parti-coloured plumage from which it takes its name, and more especially the long black fan-like tail with its iridescent reflections of greenish bronze, render the magpie an unmistakable bird. Except for the scapulars, breast, and flanks, which are white, and elongated patches of the same on the inner webs of the primary quills, the plumage of the upper-parts is black glossed with green and violet. Hens, which are somewhat smaller than their partners, display rather less lustre on the plumage; this feature being also characteristic of immature birds.

The magpie, described in some works as *Pica pica*, is very nearly a circumpolar bird, its range comprising Europe, a large part of northern and central Asia, inclusive of Kashmir and Baluchistan, and a considerable extent of North America. Asiatic magpies generally show more white on the primary quills, although this is apparently not a sufficiently constant or well-marked difference to justify even their racial separation. In Great Britain the magpie is resident and widely distributed, although in many districts exceedingly local, and this for no apparent reason. This is especially noticeable in certain

parts of north Hertfordshire, where these birds are quite unknown in some parishes, and yet abundant a few miles away on each side. It is absent from some parts of Scotland, as it is also from the neighbouring islands. To Ireland the magpie appears to have been introduced about the year 1676, since which date it has gradually spread all over the country, with the exception of the open moors, which are, of course, unsuited to its habits.

Magpies are usually seen singly or in pairs, occasionally in threes; but in some districts they repair to the plantations and shrubberies which form their favourite haunts in considerable numbers at roosting-time. In the matter of food these birds closely resemble jays;



MOUNTED IN THE ROWLAND WARD STUDIOS

MAGPIE.

and, like the latter, they are accordingly hated and persecuted by farmers and gamekeepers. From this constant persecution the bird has probably developed those shy and skulking habits which form some of its most distinctive traits in England. Taught, perhaps, by its own thievish habits, the magpie constructs an almost burglar-proof nest, built of twigs, on a foundation of mud, and generally furnished with a domed roof, well protected by thorny branches. Inside it is neatly carpeted with fine roots. The eggs are rather more numerous than in the crow-tribe generally, the number in a clutch ranging from four to seven. On a pale green or greenish blue ground they are in most cases profusely mottled and spotted with brown and olive-brown, underlain by grey cloudings and spots.

Nutcracker
(*Nucifraga*
caryocatactes).

Although more nearly related to the crows and rooks than are the two last-named species, the nutcracker is placed after the latter on account of being only a comparatively scarce and irregular visitor to the British Isles. It is, in fact, a kind of spotted crow, specially distinguished, however, by the great relative shortness of the first primary quill of the wings. The close body-plumage is profusely

spangled with small white stars ; the wing-quills are, however, black ; the tail-feathers black, tinged with green, and, with the exception of the inner pair, tipped with white ; and the under tail-coverts wholly white. A brownish tinge on the quills is distinctive of hens, whether adult or immature.

From Scandinavia to Japan, and in the mountains of central and south-central Europe, the nutcracker is to be found almost universally where large pine-forests exist, and is one of the most characteristic birds of the deodar-woods of Kashmir, where its presence is made known by its loud and characteristic note.



MOUNTED IN THE ROWLAND WARD STUDIOS

NUTCRACKER.

A considerable number of instances (too many to record in detail) of the occurrence of this bird in Great Britain have been noted ; but it is somewhat doubtful whether the species is really entitled to a definite place in the British list. Recently, however, a whole party of these birds made their appearance in Shropshire, where they were seen repeatedly by some ladies in the garden behind their house. In this garden, according to a local narrator, there is a large yew-tree, whilst close by are several plantations of conifers and other trees ; the whole neighbourhood

being more or less wooded. The ladies first noticed a single strange bird on the lawn below the yew-tree towards the end of August. It was larger than a starling and lighter in colour, whilst its walk was a kind of strut similar to that of a rook. When a week or so later the same bird again appeared accompanied by several others of the same kind they began to try and ascertain its species. The birds were undoubtedly nutcrackers, and they continued to visit the garden from time to time up till the end of September. On some occasions they were seen several times in a day, and they apparently numbered five, but possibly six. They were very shy, and always flew away when any one appeared in the garden, going sometimes into the

yew-tree, at others disappearing into trees farther off. They were not all alike in plumage, some being darker than others; these last were probably females. The nutcracker on the rare occasions when it has previously visited Great Britain has appeared in the autumn, generally in October, so that this little party seems to have come somewhat earlier than usual. In general habits, especially as regards the nature of its food, the nutcracker is very similar to jays and magpies.

Chough
(*Pyrrhocorax*
graculus).

The contrast between the glossy black plumage and the brilliant cherry-red of the legs, and long, pointed, and downwardly curved beak renders the chough, or Cornish chough (*Graculus graculus* of some authors), an unmistakable bird. The hen is distinguishable externally from the cock only by her somewhat inferior size; but birds of the year have the legs and beak dull orange till September, after which time they assume the cherry-red of their parents. The home of the chough is either sea-cliffs or inland mountains, and in such situations this bird is to be found from China through Central Asia and Persia to the Mediterranean countries and central Europe, with local extensions somewhat farther north. In Great Britain it was formerly found inland, as well as on the cliffs of Sussex and the Isle of Wight, but it is now restricted to the cliffs of Dorsetshire, Cornwall, north Devonshire, Wales, the Isle of Man, some of the Scottish isles, inclusive of the Hebrides and Skye, and Ireland. In its few remaining English haunts the bird is almost yearly becoming scarcer, and it does not appear to have been seen for some years in the Hebrides; in Ireland it was till recently common and resident on most of the precipitous coast-cliffs, as well as on some of the scarped faces of inland mountains, and indeed was highly characteristic of Irish cliff-scenery, but its numbers, owing to the raids of egg-collectors, now appear to be rapidly decreasing.

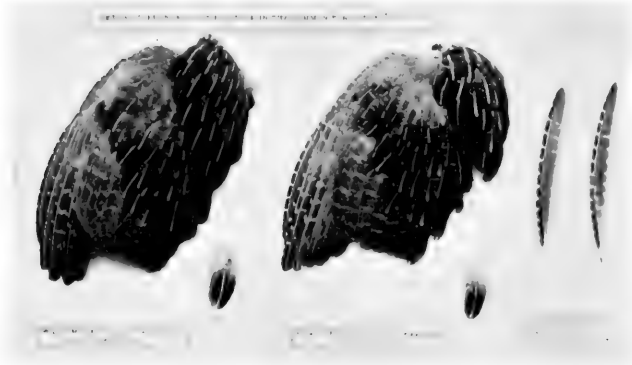


MOUNTED IN THE ROWLAND WARD STUDIOS

CHOUGH.

Choughs are sociable, but at the same time remarkably stay-at-home birds, seldom wandering more than a mile or so away from their native cliffs. Here they breed on the ledges, or in caves, generally in such situations that access to their nests is a matter of considerable difficulty and often danger. Sticks and sprigs of heather, with a lining of wool and hair, are the constituents of the nest, which, at the proper season, contains from three to half-a-dozen creamy white eggs, with variable brown spots and more deep-seated grey markings, the usual length being $1\frac{1}{2}$ inches. In Ladak choughs inhabit some of the bare sand-covered mountains in vast numbers, a haunt very different from the breezy Cornish cliffs.

A single example of the Alpine chough (*Pyrrhocorax alpinus*, or *P. pyrrhocorax*) shot many years ago in Oxfordshire had probably escaped from captivity.



WINGS OF MALE AND FEMALE PARTRIDGE, TO SHOW DIFFERENCE.

INDEX

- Abyssinian Roller, 434
abyssinicus, *Coracias*, 434
Acanthis cannabina, 563
carduelis britannicus, 562
flavirostris, 565
linaria, 566
rufescens, 567
Acanthopneuste viridanus, 503
Accentor alpinus, 479
modularis, 477
Accentorinae, 477
Accipiter nisus, 374
Accipitres, 353
Accipitrinus, *Asio*, 407
Acredula caudata, 526
europæa, 527
rosea, 527
Acrocephalus aquaticus, 508
palustris, 507
phragmitis, 504
streperus, 506
turdoides, 506
Actiturus longicaudus, 109
acuminata, *Heteropygia*, 118
Tringa, 118
acuta, *Dasila*, 294
adamsi, *Colymbus*, 236
Ædon familiaris, 498
galactodes, 498
lusciniæ, 463
megarhyncha, 463
Ægialitis alexandrina, 72
asiatica, 74
dubia, 72
hiaticula, 69
morinella, 75
vocifera, 74
Ægithalus vagans, 526
egyptiaca, *Chenalopex*, 283
egyptiacus, *Pluvianus*, 54
egyptius, *Caprimulgus*, 428
æruginosus, *Circus*, 387
Æsalon regulus, 363
æsalon, *Falco*, 364
affinis, *Nyroca*, 319
africanus, *Coturnix*, 19
Daulias, 464
Agelæus phaniceus, 583
Agrobates galactodes, 498
Alauda arvensis, 547
scotica, 547
sibirica, 546
yellowiensis, 548
alaudarius, *Tinnunculus*, 366
Alaudidæ, 545
alba, *Ciconia*, 257
Herodias, 247
Motacilla, 533
albellus, *Mergus*, 335
albeola, *Charitonetta*, 324
Clangula, 324
albicilla, *Haliaeetus*, 392
albicollis, *Cinclus*, 515
Zonotrichia, 558
albifrons, *Anser*, 274
albipennis, *Podiceps*, 234
albus, *Lagopus*, 7
Alca impennis, 193
torda, 189
Alcæ, 189
Alcedinidæ, 436
Alcedo ispida, 436
bengalensis, 437
Alcide, 189
alcyon, *Ceryle*, 439
Alectorides, 44
alexandrina, *Ægialitis*, 72
Alle nigricans, 201
alpestris, *Otocorys*, 545
alpina, *Pelidna*, 124
Tringa, 123
 Alpine Chough, 600
 Hedge-Sparrow, 479
 Swift, 431
alpinus, *Accentor*, 479
Pyrrhocorax, 600
Aluco flammea, 400
aluco, *Strix*, 408
Syrnium, 408
 American Black Tern, 165
 Bittern, 256
 Goshawk, 374
 Grebe, 234
 Scaup-Duck, 319
 Scop's Owl, 418
 Stint, 114

- American Summer-Snipe, 94
americanus, *Coccyzus*, 425
Mareca, 294
Merganser, 339
Ampelidae, 581
Ampelis garrulus, 581
amurensis, *Erythropus*, 362
anastheta, *Sterna*, 179
Anas boschas, 283
Anatidae, 265
Anatinae, 283
Ancylochilus subarguatus, 122
anglica, *Geochelidon*, 169
Loxia, 572
Sterna, 169
anglicus, *Dendrocopos*, 446
anglorum, *Puffinus*, 217
Regulus, 513
Anorthura troglodytes, 516
Anser albifrons, 274
arvensis, 277
brachyrhynchus, 277
erythropus, 275
fabalis, 276
ferus, 271
gambeli, 275
neglectus, 277
rubirostris, 273
serrirostris, 277
Anseres, 265
Anserinae, 271
Athene bactriana, 418
glauca, 418
noctua, 418
Anthus campestris, 543
cervinus, 541
obscurus, 544
pratensis, 541
richardi, 542
rupestris, 545
spilella, 544
trivialis, 539
apiaster, *Merops*, 434
apiwora, *Pernis*, 369
Apus apus, 430
melba, 431
apus, *Apus*, 430
Cypselus, 428
Micropus, 430
aquaticus, *Acrocephalus*, 508
Cinclus, 513
Rallus, 30
arbores, *Lullula*, 548
Archibuteo lagopus, 380
Arctic Skua, 185
Tern, 173
arctica, *Fratercula*, 204
arcticus, *Colymbus*, 238
Ardea cinerea, 241
garzetta, 248
manillensis, 247
purpurea, 245
Ardeida, 242
Ardeola ralloides, 249
Ardetta minuta, 252
arenaria, *Calidris*, 110
Arenaria interpres, 59
argentatus, *Larus*, 145
arquata, *Numenius*, 84
Arquatella maritima, 120
arvensis, *Alauda*, 547
Anser, 277
Ashy-headed Wagtail, 539
asiatica, *Aegialitis*, 74
Asio accipitrinus, 407
otus, 404
wilsonianus, 405
asio, *Scops*, 418
Asionidae, 404
Asioninae, 412
assimilis, *Puffinus*, 219
Astur atricapillus, 374
palumbarius, 372
ater, *Parus*, 522
atra, *Fulica*, 42
atricapilla, *Ficedula*, 481
Muscicapa, 481
Sylvia, 493
atricapillus, *Astur*, 374
Parus, 524
atrigularis, *Turdus*, 461
Auk, 189
Great, 193
Little, 201
aurantiventris, *Ligurinus*, 576
auratus, *Colaptes*, 447
aureola, *Emberiza*, 553
auritus, *Dytes*, 229
Podiceps, 229
Avocet, 81
avocetta, *Recurvirostra*, 81
Aythya bari, 316
ferina, 311
nyroca, 314
bactriana, *Athene*, 418
bari, *Aythya*, 316
Nyroca, 316
bailloni, *Porzana*, 37
Baillon's Crane, 37
bairdi, *Heteropygia*, 118
Tringa, 118
Baird's Sandpiper, 118
Barnacle Goose, 279
Barn-Owl, 400
Barred Crossbill, 572
Barred Warbler, 492
Barrow's Golden-eye, 324
Bar-tailed Godwit, 90
Bartramia longicauda, 109
Bartram's Sandpiper, 109
bassana, *Sula*, 349
bassanus, *Dysporus*, 350
Bean-Goose, 277
Bearded Titmouse, 518
Bee-eater, 434

- Bee-eater, Blue-tailed, 436
beema, *Motacilla*, 539
belgica, *Limosa*, 87
 Belted Kingfisher, 439
bengalensis, *Alcedo*, 437
Bernicla bernicla, 279
 branta, 281
bernicla, *Bernicla*, 279
 Branta, 281
bewicki, *Cygnus*, 269
 Bewick's Swan, 269
biarmicus, *Panurus*, 518
bifasciata, *Loxia*, 572
 Bittern, 254
 American, 256
 Little, 252
 Black-backed Gull, Great, 150
 Lesser, 153
 Black-bellied Water-Ouzel, 515
 Black-billed Cuckoo, 425
 Black-eared Wheatear, 473
 Black Guillemot, 199
 Black-headed Bunting, 555
 Gull, 155
 Great, 158
 Mediterranean, 157
 Wagtail, 539
 Black Kite, 392
 Black Lark, 548
 Black-necked Grebe, 230
 Black Redstart, 471
 Black-shafted Ternlet, 179
 Black Starling, 585
 Black Stork, 259
 Black-tailed Godwit, 87
 Black Tern, 164
 American, 165
 White-winged, 167
 Black-throated Diver, 238
 Thrush, 461
 Wheatear, 474
 Black-winged Kite, 392
 Pratincole, 57
 Blackbird, 457
 Blackcap, 493
 Blackcock, 4
 Bluebird, 477
 Blue-headed Wagtail, 538
 Blue-Rock, 27
 Blue-tailed Bee-eater, 436
 Blue Thrush, 463
 Titmouse, 520
 Bluethroat, 467
 White-spotted, 468
 Blue-winged Teal, 299
 Blyth's Willow-Wren, 503
 Bonaparte's Gull, 157
 Sandpiper, 118
borealis, *Buteo*, 380
 Motacilla, 539
 Numenius, 87
 Parus, 524, 525
boscas, *Anas*, 283
Botaurus lentiginosus, 256
 stellaris, 254
brachydactyla, *Calandrella*, 548
brachyrhynchus, *Anser*, 277
 Brahminy Duck, 36
 Brambling, 559
 Brandt's Bunting, 555
Branta bernicla, 281
 canadensis, 283
 glaucoaster, 282
 hutchinsi, 283
 leucopsis, 279
 nigricans, 282
 ruficollis, 282
branta, *Bernicla*, 281
 Brent Goose, 281
brevipes, *Æstrelata*, 221
brevirostris, *Rissa*, 162
britannica, *Certhia*, 531
 Sitta, 529
britannicus, *Acanthis*, 562
 Carduelis, 562
 Cinclus, 515
 Parus, 523
 Broad-billed Sandpiper, 126
bruennichi, *Uria*, 198
 Brünnich's Guillemot, 198
Bubo ignavus, 412
 turcomanus, 413
Bubonide, 404
Bubulus russatus, 248
buccinator, *Cygnus*, 270
 Buff-backed Heron, 248
 Buff-breasted Sandpiper, 109
 Buffle-headed Duck, 324
 Buffon's Skua, 188
 Bullfinch, 572
bulweri, *Bulweria*, 222
Bulweria bulweri, 222
 Bulwer's Petrel, 222
 Bunting, 549
 Black-headed, 555
 Brandt's, 555
 Cirl, 552
 Dwarf, 554
 Lapland, 557
 Ortolan, 555
 Reed, 554
 Rustic, 555
 Snow, 556
 White-throated, 558
 Yellow-breasted, 553
 Bustard, 46
 Hubara, 50
 Little, 49
Buteo borealis, 380
 desertorum, 379
 lineatus, 380
 plumipes, 379
 vulgaris, 377
Butorides virescens, 252
 Buzzard, 377
 Honey, 369

Buzzard, Rough-legged, 380

Caccabis chukar, 17

rufa, 16

saxatilis, 17

cælestis, *Gallinago*, 135

cæruleus, *Elanus*, 392

Parus, 520

casia, *Sitta*, 527

Calandra-Lark, 547

calandra, *Melanocorypha*, 547

Calandrella brachydactyla, 548

Calcarius lapponicus, 557

calendula, *Regulus*, 513

Calidris arenaria, 110

calidris, *Totanus*, 99

californica, *Uria*, 196

Calliope camchatcensis, 469

camchatcensis, *Calliope*, 469

campestris, *Anthus*, 543

Tetrax, 49

Canada Goose, 283

canadensis, *Branta*, 283

candicans, *Falco*, 359

Hierofalco, 359

candida, *Coscoroba*, 267

candidus, *Himantopus*, 80

caniceps, *Carduelis*, 561

Cannabina cannabina, 563

flavirostris, 565

linaria, 566

rostrata, 567

rufescens, 567

cannabina, *Acanthis*, 563

Cannabina, 563

Linaria, 563

Linota, 563

canorus, *Cuculus*, 425

cantiaca, *Sterna*, 176

canus, *Larus*, 141

canutus, *Tringa*, 118

Cape Petrel, 215

capensis, *Daption*, 215

Capercaillie, 1

Capped Petrel, 221

Caprimulgidae, 426

Caprimulgus ægyptius, 428

europæus, 426

ruficollis, 428

carbo, *Phalacrocorax*, 343

Carduelis caniceps, 561

britannicus, 562

elegans, 560

major, 561

spinus, 562

Carine noctua, 418

Carolina Crane, 39

carolina, *Porzana*, 39

Carpodacus erythrinus, 570

caryocatactes, *Nucifraga*, 597

Casarca rutila, 306

caspia, *Hydroprogue*, 168

Sterna, 168

Caspian Sand-Plover, 74

Tern, 168

castaneus, *Turdus*, 460

castor, *Merganser*, 338

catarrhactes, *Megalestris*, 182

Stercorarius, 181

caterina, *Saxicola*, 474

Cattle-Egret, 248

caudacuta, *Chætura*, 432

caudata, *Acredula*, 526

cenchrus, *Cerchneis*, 368

Tinnunculus, 368

Cephus grylle, 199

Cerchneis cenchrus, 368

tinnunculus, 366

Certhiidae, 529

Certhia britannica, 531

familiaris, 529

macrodactyla, 531

cervinus, *Anthus*, 541

Ceryle alcyon, 439

Cettia cettii, 510

cettii, *Cettia*, 510

Cetti's Warbler, 510

Chætura caudacuta, 432

Chaffinch, 558

Chaja, 335

Charadriidae, 58

Charadriine, 59

Charadrius dominicus, 64

fulvus, 64

pluvialis, 61

Charitonetta albeola, 324

Chaulelasmus streperus, 286

Chelidon urbica, 488

Chen hyperboreus, 279

Chenalopex ægyptiaca, 283

cherrug, *Falco*, 359

Chettusia gregaria, 69

Chiff-Chaff, 501

Siberian, 502

Chloris chloris, 575

chloris, *Chloris*, 575

Ligurinus, 575

chloropus, *Gallinula*, 40

Chough, 599

Alpine, 600

chrysaëtus, *Aquila*, 394

Chrysomitris citrinella, 563

spinus, 562

chukar, *Caccabis*, 17

Chukor, 17

Ciconia alba, 257

nigra, 259

Ciconiidae, 257

cinerea, *Ardea*, 241

Perdix, 13

Cinclidae, 514

Cinclus albicollis, 515

aquaticus, 513

britannicus, 515

germanicus, 515

pyrenaicus, 515

- Cinclus melanogaster*, 515
cineraceus, *Circus*, 386
cinerea, *Motacilla*, 539
 Sylvia, 489
cioides, *Emberiza*, 555
circia, *Querquedula*, 297
Circus æruginosus, 387
 cineraceus, 386
 cyaneus, 382
 Cirl-Bunting, 552
cirlus, *Emberiza*, 552
 Citril Finch, 563
citrinella, *Chrysomitris*, 563
 Emberiza, 551
Cladorhynchus leucocephalus, 82
Clangula albeola, 324
 glaucion, 321
 islandica, 324
Clivicola riparia, 486
clypeata, *Spatula*, 300
 Coal-Titmouse, 522
Coccothraustes vulgaris, 574
Coccothraustinae, 574
Coccytes glandarius, 425
cœlebs, *Fringilla*, 558
Colaptes auratus, 447
colchicus, *Phasianus*, 11
 Collared Petrel, 221
collurio, *Lanius*, 578
Colæus monedula, 593
Columba intermedia, 27
 lasiotis, 24
 livia, 27
 ænas, 25
 palumbus, 23
 rupestris, 27
Columbæ, 23
Columbidae, 23
Colymbidae, 235
Colymbus adamsi, 236
 arcticus, 238
 glacialis, 235
 pacificus, 239
 septentrionalis, 240
comatus, *Merganser*, 340
comminutus, *Dendrocopus*, 447
 Common Gull, 141
 Tern, 171
 Coot, 42
Coracias abyssinicus, 434
 garrula, 432
 indica, 434
Coraciidae, 434
corax, *Corvus*, 586
 Cormorant, 343
 Green, 347
 Corn-Crake, 33
cornix, *Corone*, 590
 Corvus, 590
cornuta, *Tadorna*, 303
Corone cornix, 590
 corone, 588
corone, *Corone*, 588
corone, *Corvus*, 588
Corvide, 586
Corvus corax, 586
 cornix, 590
 corone, 588
 frugilegus, 591
 monedula, 593
Coscoroba candida, 267
 Coscoroba Swan, 267
Cosmonetta histriónica, 326
Cotile riparia, 486
Coturnix communis, 18
 Courser, Cream-coloured, 54
 Crane, Baillon's, 37
 Carolina, 39
 Little, 35
 Spotted, 38
 Crane, 44
 Crowned, 46
 Demoiselle, 46
crassirostris, *Tringa*, 118
 Cream-coloured Courser, 54
crecca, *Nettion*, 288
 Nettion, 288
 Querquedula, 288
crepidatus, *Stercorarius*, 185
 Crested Grebe, Great, 222
 Honey-Buzzard, 370
 Lark, 548
 Titmouse, 525
Crex pratensis, 33
cristata, *Fuligula*, 319
 Galerita, 548
 Lophæthia, 225
 Pernis, 370
cristatus, *Lophophanes*, 525
 Parus, 525
 Podiceps, 222
 Regulus, 511
 Crossbill, 570
 Barred, 572
 Parrot, 571
 White, 572
 Crow, 588
 Grey, 590
 Crowned Crane, 46
cryptoleucura, *Oceanodroma*, 211
 Cuckoo, 420
 Black-billed, 425
 Great spotted, 425
 Yellow-billed, 425
Cuculidae, 421
cucullatus, *Lophodytes*, 343
 Merganser, 342
 Curlew, 84
 Eskimo, 87
 Sandpiper, 122
curruca, *Sylvia*, 491
Cursorius gallicus, 54
curvirostra, *Loxia*, 570
Cuculus canorus, 425
Cyanecula suecica, 467
 wolfi, 468

- cyaneus*, *Circus*, 382
Monticola, 463
Petrophila, 463
Cygninae, 267
Cygnus bewickii, 269
buccinator, 270
immutabilis, 270
musicus, 265
olor, 270
Cypselide, 429
Cypselus apus, 428
melba, 431

Dabchick, 232
Dafila acuta, 294
Daption capensis, 215
Dartford Warbler, 496
Daulias africanus, 464
golzii, 464
luscini, 463
philomela, 464
dauma, *Turdus*, 462
deliata, *Surnia*, 416
Demoiselle Crane, 46
Dendrocopus anglicus, 446
comminutus, 447
leuconotus, 447
major, 444
medius, 447
minor, 446
pubescens, 447
villosus, 447
Desert Wheatear, 474
deserti, *Saxicola*, 474
desertorum, *Buteo*, 377
desmaresti, *Phalacrocorax*, 348
discors, *Querquedula*, 299
Diver, Black-throated, 238
Great Northern, 235
Red-throated, 240
White-billed, 236
domesticus, *Passer*, 568
dominicus, *Charadrius*, 64
Dotterel, 75
dougalli, *Sterna*, 175
Dove, Ring, 23
Rock, 27
Stock, 25
Turtle, 29
Downy Woodpecker, 447
dresseri, *Somateria*, 328
Parus, 524
dubia, *Agialitis*, 72
dubius, *Turdus*, 462
Duck, Brahminy, 306
Buffle-headed, 324
Eider, 326
Harlequin, 326
Long-tailed, 324
Scaup, 316
Tufted, 319
White-eyed, 314
Wild, 283

Dunlin, 123
Dusky Shearwater, 219
Little, 219
Thrush, 462
Dwarf Bunting, 554
Dysporus bassanus, 350
Dytes auritus, 229

Eagle, 394
Spotted, 396
White-tailed, 392
Eagle-Owl, 412
eburnea, *Pagophila*, 160
Ectopistes migratorius, 30
Egret, Cattle, 248
Little, 248
Egyptian Goose, 283
Nightjar, 428
Plover, 54
Eider-Duck, 326
Greenland, 328
King, 329
Pacific, 329
Elanoides furcatus, 392
Elanus caeruleus, 392
elegans, *Carduelis*, 560
Emberiza aureola, 553
cioides, 555
cirlus, 552
citrinella, 551
hortulana, 555
melanoccephala, 555
miliaria, 549
palustris, 555
pusilla, 554
pyrrhuloides, 555
rustica, 555
schaniclus, 554
Emberizinae, 550
enucleator, *Pinicola*, 574
Pyrrhula, 574
epops, *Upupa*, 439
Ereunetes pusillus, 92
Erionetta spectabilis, 331
Erithacus melophilus, 467
rubecula, 465
superbus, 467
erythrina, *Pyrrhula*, 570
erythrinus, *Carpodacus*, 570
erythrophthalmus, *Coccyzus*, 425
Erythropus amurensis, 362
vespertinus, 362
erythropus, *Anser*, 275
Eskimo Curlew, 87
Eudromias morinellus, 75
europaea, *Acredula*, 527
Pyrrhula, 572
Sitta, 528
europæus, *Caprimulgus*, 426
excubitor, *Lanius*, 577
exilipes, *Linota*, 567
fabalis, *Anser*, 276

- falcinellus*, *Plegadis*, 259
Falco *ussoni*, 394
candicans, 359
cherrug, 359
feldeggii, 357
gyrfalco, 361
holboellii, 360
islandus, 360
peregrinus, 353
rusticolus, 360
subbuteo, 357
tinnunculus, 367
Falcon, Greenland, 359
Iceland, 360
Lesser, 357
Peregrine, 353
Red-footed, 362
Falconidae, 354
Falconinae, 354
familiaris, *Aedon*, 498
Certhia, 529
feldeggii, *Falco*, 357
ferina, *Aythya*, 311
Fuligula, 311
Nyroca, 311
ferus, *Anser*, 271
ferruginea, *Fuligula*, 314
Nyroca, 314
ferrugineus, *Scolecophagus*, 583
Ficedula atricapilla, 481
Fieldfare, 456
Finch, Citril, 563
Rose, 570
Snow, 568
Fire-crested Wren, 513
flammea, *Aluco*, 400
Strix, 400
flava, *Motacilla*, 538
flavipes, *Totanus*, 103
flavirostris, *Acanthis*, 565
Cannabina, 565
Linaria, 565
Linota, 565
fluviatilis, *Podiceps*, 232
Sterna, 171
Tachybaptus, 234
Flycatcher, Pied, 481
Red-breasted, 483
Spotted, 479
Fork-tailed Petrel, 209
Madeiran, 211
Fratercula arctica, 204
Frigate Petrel, 212
Fringilla caelebs, 558
montifringilla, 559
Fringillidae, 549
Fringillinae, 558
frugilegus, *Corvus*, 591
Trypanocorax, 591
Fulica atra, 42
Fulicariae, 30
fulicarius, *Phalaropus*, 130
fuliginosa, *Sterna*, 179
Fuligula cristata, 310
ferina, 311
ferruginea, 314
marila, 310
rufoa, 310
fuligula, *Nyroca*, 319
Fuligulinae, 309
Fulmar, 212
Fulmaris glacialis, 212
fulvus, *Charadrius*, 64
Gyps, 396
funerea, *Surnia*, 416
furcatus, *Elanoides*, 392
Nauclerus, 392
fusca, *Eodemia*, 333
fusciollis, *Heteropygia*, 118
Phalacrocorax, 348
Tringa, 118
fuscus, *Larus*, 153
Totanus, 101
Gadwall, 286
galactodes, *Aedon*, 498
Agrobates, 498
galbula, *Oriolus*, 581
Galerita cristata, 548
gallicus, *Cursorius*, 54
Galline, 1
Gallinago caelestis, 135
gallinula, 139
major, 138
wilsoni, 139
gallinago, *Limnocyrtus*, 139
Gallinula chloropus, 42
gallinula, *Gallinago*, 139
gambeli, *Anser*, 275
Gannet, 349
Garden Warbler, 495
Garganey, 297
North American, 299
garrula, *Coracias*, 432
Garrulus glandarius, 594
rusticigum, 596
garrulus, *Ampelis*, 581
Garzetta garzetta, 248
garzetta, *Ardea*, 248
Garzetta, 248
Herodias, 248
Gavia, 141
Gecinus viridis, 441
Geocichla anglica, 169
Geocichla sibirica, 461
Ger-Falcon, 361
germanicus, *Cinclus*, 515
giu, *Scops*, 416
glacialis, *Colymbus*, 235
Fulmarus, 212
Harelda, 324
glandarius, *Coccyzus*, 425
Garrulus, 594
Glareola melanoptera, 57
pratricula, 56
glareola, *Rhyacophilus*, 97

- glareola*, *Totanus*, 97
Glareolidae, 54
glaucescens, *Larus*, 149
glaucion, *Clangula*, 321
glaucogaster, *Branta*, 282
 Glaucous Gull, 147
glaux, *Athene*, 418
 Glossy Ibis, 259
Glottis nebularius, 103
glottis, *Totanus*, 103
 Goatsucker, 426
 Godwit, Bar-tailed, 90
 Black-tailed, 87
 Red-breasted, 91
 Snipe-billed, 91
 Golden Oriole, 581
 Goldfinch, 560
golzii, *Daulias*, 464
 Goosander, 338
 Goose, Barnacle, 279
 Bean, 277
 Brent, 281
 Canada, 283
 Egyptian, 283
 Grey Lag, 271
 Pink-footed, 277
 Red-breasted, 282
 Snow, 279
 White-fronted, 274
 Goshawk, 372
 American, 374
 Golden Eagle, 394
 Golden-crested Wren, 511
 Golden-eye, 321
 Barrow's, 324
 Golden-winged Woodpecker, 447
 Grackle, Rusty, 583
Graculus graculus, 599
graculus, *Graculus*, 599
 Phalacrocorax, 347
 Pyrhocorax, 599
Grallae, 45
 Grasshopper Warbler, 509
gravis, *Puffinus*, 215
 Great Auk, 193
 Black-backed Gull, 150
 Black-headed Gull, 158
 Black Woodpecker, 447
 Crested Grebe, 222
 Northern Diver, 235
 Shearwater, 215
 Skua, 181
 Snipe, 138
 Spotted Cuckoo, 425
 Woodpecker, 444
 Titmouse, 521
 White Heron, 247
 Greater Reed-Warbler, 507
 White-winged Gull, 147
 Yellowshank, 103
 Grebe, American, 234
 Black-necked, 230
 Great Crested, 222
 Grebe, Little, 232
 Red-necked, 227
 Sclavonian, 229
 Green Cormorant, 347
 Sandpiper, 95
 Woodpecker, 441
 Greenfinch, 575
 Greenland Eider-Duck, 328
 Falcon, 359
 Greenshank, 103
 Lesser, 102
gregaria, *Chettusia*, 69
 Grey-backed Warbler, 498
 Grey Crow, 590
 Grey-headed Wagtail, 539
 Grey Lag Goose, 271
 Phalarope, 130
 Plover, 65
 Shrike, 577
 Lesser, 578
 Pallas's, 578
 Wagtail, 535
 Griffon-Vulture, 396
griseigena, *Podiceps*, 227
griseola, *Muscicapa*, 479
griseus, *Macrorhamphus*, 91
 Nycticorax, 249
 Puffinus, 220
 Grosbeak, Pine, 574
 Ground-Thrush, 461
 Grouse, 7
Gruide, 45
Grus communis, 44
grylle, *Cephus*, 199
 Uria, 199
 Guillemot, 195
 Black, 199
 Brünnich's, 198
 Mandt's, 200
 Ringed, 198
 Gull, Black-headed, 155
 Bonaparte's, 157
 Common, 141
 Great Black-backed, 150
 Black-headed, 158
 Greater White-winged, 147
 Herring, 145
 Iceland, 149
 Ivory, 160
 Lesser Black-backed, 153
 Little, 158
 Mediterranean Black-headed, 157
 Ross's, 160
 Sabine's, 159
 Gull-billed Tern, 169
Gyps fulvus, 396
gyrfalco, *Falco*, 361
 Hierofalco, 361
Hamatopodina, 77
Hamatopus ostralegus, 77
hesitata, *Estrelata*, 221
 Hairy Woodpecker, 447

Half-webbed Sandpiper, 92
Haliaetus albicilla, 392
haliaetus, *Pandion*, 397
Harelda glacialis, 324
Harlequin-Duck, 326
Harrier, Hen, 382
Marsh, 387
Montagu's, 386
Hawfinch, 574
Hawk, Sparrow, 374
Hawk-Owl, 416
Hedge-Sparrow, 477
Alpine, 479
Helodromus ochropus, 95
solitarius, 96
helvetica, *Squatarola*, 64
Hen-Harrier, 382
Herbivocula schwarzi, 503
Herodias alba, 247
garzetta, 248
Herodiones, 241
Heron, 241
Buff-backed, 248
Great White, 247
Little Green, 252
Night, 250
Purple, 245
Squacco, 249
Herring-Gull, 145
Heteropygia acuminata, 118
bairdi, 118
fuscicollis, 118
maculata, 117
hiaticula, *Aegialitis*, 69
Hierofalco candicans, 359
gyrfalco, 361
islandus, 360
Himantopus candidus, 80
hirtensis, *Troglodytes*, 517
Hirundinidae, 483
Hirundo rufula, 486
rustica, 483
histrionica, *Cosmonetta*, 326
Histrionicus torquatus, 326
Hobby, 357
hodgeonia, *Perdix*, 15
holboelli, *Falco*, 360
Linota, 566
Honey-Buzzard, 369
Crested, 370
Hooded Merganser, 342
Hoopoe, 439
Indian, 440
hornemanni, *Linota*, 567
hortensis, *Sylvia*, 495
hortulana, *Emberiza*, 555
hortulanus, *Serinus*, 569
Hubara Bustard, 50
Hubara macqueeni, 50
humei, *Sturnus*, 584
hutchinsi, *Branta*, 283
hybrida, *Hydrochelidon*, 166
Hydrochelidon hybrida, 166

Hydrochelidon leucoptera, 167
nigra, 164
surinamensis, 165
Hydropogon caspius, 168
Hylocichla iliaca, 454
musica, 452
hyperboreus, *Chen*, 279
Larus, 147
Phalaropus, 127
Plectrophanes, 556
Hypolais icterina, 503
polyglotta, 504
hypoleucus, *Totanus*, 93
Tringoides, 93
Ibis, Glossy, 259
Iceland Falcon, 360
Gull, 149
ichthyætus, *Larus*, 158
Icteridae, 583
icterina, *Hypolais*, 503
ignavus, *Bubo*, 412
ignicapillus, *Regulus*, 513
iliaca, *Hylocichla*, 454
iliacus, *Turdus*, 454
immutabilis, *Cygnus*, 270
impennis, *Alca*, 193
Plautus, 194
Indian Hoopoe, 440
Oriole, 583
River-Tern, 171
Roller, 434
Shag, 348
indica, *Coracias*, 434
Upupa, 440
intermedia, *Columba*, 27
Porzana, 37
interpres, *Arenaria*, 59
Streptilas, 58
Isabelline Wheatear, 473
isabellinus, *Saxicola*, 473
islandica, *Clangula*, 324
islandorum, *Lagopus*, 10
islandus, *Falco*, 360
Hierofalco, 360
ispida, *Alcedo*, 436
Ivory-Gull, 160
lyngina, 448
lynx torquilla, 448
Jackdaw, 593
Jack-Snipe, 139
Japanese Pheasant, 12
Jay, 594
jerdoni, *Sylvia*, 493
Kentish Plover, 72
Kestrel, 366
Lesser, 368
Kill-deer Plover, 74
King-Eider, 329
Kingfisher, 436
Belted, 439

- Kite, 389
 Black, 392
 Black-winged, 392
 Swallow-tailed, 392
 Kittiwake, 162
kleinschmidti, *Parus*, 524
 Knot, 118
 Kuhl's Shearwater, 216
kuhli, *Puffinus*, 216
kundu, *Oriolus*, 583

Lagopus albus, 7
 islandorum, 10
 mutus, 9
 rupestris, 10
 scoticus, 7
lagopus, *Archibuteo*, 380
 Land-Rail, 33
Laniidae, 577
Lanius collurio, 578
 excubitor, 577
 meridionalis, 578
 minor, 578
 nubicus, 578
 pomeranus, 580
 sibiricus, 578
 Lapland Bunting, 557
lapponica, *Limosa*, 90
lapponicus, *Calcarius*, 557
 Plectrophanes, 557
 Lapwing, 66
 Sociable, 69
 Large-billed Reed-Bunting, 555
Laridae, 143
Lariformes, 141
Larinae, 143
 Lark, 547
 Black, 548
 Calandra, 547
 Crested, 548
 Shore, 545
 Short-toed, 548
 White-winged, 546
 Wood, 548
Larus argentatus, 145
 canus, 141
 glaucescens, 149
 hyperboreus, 147
 ichthyactis, 158
 leucopterus, 149
 marinus, 150
 melanocephalus, 157
 minutus, 158
 philadelphia, 157
lasiotis, *Columba*, 24
 Leach's Petrel, 209
lenticinosus, *Botaurus*, 256
 Lesser Black-backed Gull, 153
 Falcon, 357
 Greenshank, 102
 Grey Shrike, 578
 Kestrel, 368
 Plover, 64
 Lesser Redpoll, 567
 Sooty Tern, 179
 Spotted Woodpecker, 446
 Whitethroat, 491
 White-winged Gull, 149
 Yellowshank, 103
leucocephalus, *Cladorhynchus*, 82
leuconotus, *Dendrocopos*, 447
leucopsis, *Branta*, 279
leucoptera, *Hydrochelidon*, 167
 Loxia, 572
leucopterus, *Larus*, 149
leucorodia, *Platalea*, 261
leucorrhoea, *Oceanodroma*, 209
leucorrhous, *Saxicola*, 473
 Levantine Shearwater, 219
Ligurinus chloris, 575
 aurantiventris, 576
Limicola platyrhyncha, 126
Limicola, 50
Limnocyrtus gallinago, 139
Limnites minuta, 112
 minutella, 114
 temmincki, 114
Limosa belgica, 87
 lapponica, 90
Linaria cannabina, 563
 flavivestris, 565
 linaria, 566
 rufescens, 567
linaria, *Acanthis*, 566
 Cannabina, 566
 Linaria, 566
 Linota, 566
lineatus, *Buteo*, 380
 Linnet, 563
Linota cannabina, 563
 exilipes, 567
 flavivestris, 565
 holboellii, 566
 hornemannii, 567
 linaria, 566
 rostrata, 567
 rufescens, 567
 Little Auk, 201
 Bittern, 252
 Bustard, 49
 Crane, 35
 Dusky Shearwater, 219
 Egret, 248
 Grebe, 232
 Green-Heron, 252
 Gull, 158
 Owl, 418
 Ringed Plover, 72
 Tern, 179
livia, *Columba*, 27
Locustella luscinioides, 510
 navia, 509
 Long-eared Owl, 404
longicauda, *Bartramia*, 109
longicaudus, *Actitis*, 109
longirostris, *Parus*, 524

Long-tailed Duck, 324
 Skua, 188
 Titmouse, 526
Lophathyia cristata, 225
Lophodytes cucullatus, 343
Lophophanes cristatus, 525
Loxia anglica, 572
 bifasciata, 572
 curvirostra, 570
 leucoptera, 572
 pityopsittacus, 571
 scotica, 572
Lugubris, *Motacilla*, 531
Lullula arborea, 548
Luscinia, *Aëdon*, 463
 Daulias, 463
Luscinoides, *Locustella*, 510
Lyrurus tetrix, 4

macqueni, *Hubara*, 50
macroactyla, *Certhia*, 531
Macrorhamphus griseus, 91
 semipalmatus, 91
macrura, *Sterna*, 173
macularius, *Totanus*, 94
 Tringoides, 94
maculata, *Aquila*, 396
 Heteropygia, 117
 Tringa, 116
Madeira Petrel, 211
magna, *Sturnella*, 583
Magpie, 596
major, *Carduelis*, 561
 Dendrocopus, 444
 Gallinago, 138
 Parus, 521
Mallard, 283
mandti, *Uria*, 200
Mandt's Guillemot, 200
manillensis, *Ardea*, 247
Manx Shearwater, 217
Mareca americana, 294
 penelope, 291
marila, *Fuligula*, 316
 Nyroca, 316
marina, *Pelagodroma*, 212
marinus, *Larus*, 150
maritima, *Arquatella*, 120
 Tringa, 120
Marsh-Harrier, 387
 Sandpiper, 102
 Titmouse, 523
 Warbler, 507
Martin, 488
 Sand, 486
martius, *Picus*, 447
maruetta, *Porzana*, 38
Masked Shrike, 578
maurus, *Pratincola*, 477
Meadow-Pipit, 541
 Starling, 583
Mediterranean Black-headed Gull, 157
 medius, *Dendrocopus*, 447

Megalestris catarrhactes, 182
megarhyncha, *Aëdon*, 463
melanocephala, *Emberiza*, 555
 Motacilla, 539
 Sylvia, 497
melanocephalus, *Larus*, 157
Melanocorypha calandra, 547
 sibirica, 546
melanogaster, *Cinclus*, 515
melanolencus, *Totanus*, 103
melanope, *Motacilla*, 535
melanoptera, *Glareola*, 57
melba, *Apus*, 431
 Cypselus, 431
 Micropus, 431
Melizophilus undatus, 496
melophilus, *Erethacus*, 467
Merganser, 340
 Hooded, 342
Merganser americanus, 339
 castor, 338
 comatus, 340
 cucullatus, 342
 serrator, 340
merganser, *Mergus*, 338
Mergina, 335
Mergus albellus, 335
 merganser, 338
 serrator, 340
Merlin, 363
meridionalis, *Lanius*, 578
Meropidae, 434
Merops apiaster, 434
 philippinus, 436
Merula torquata, 459
 vulgaris, 457
merula, *Turdus*, 457
Micropus apus, 430
 melba, 431
Middle-spotted Woodpecker, 447
migrans, *Milvus*, 392
migratorius, *Ectopistes*, 30
 Turdus, 457
miliaria, *Emberiza*, 549
Milvus migrans, 392
 regalis, 389
minor, *Dendrocopus*, 445
 Lanius, 578
 Philohela, 133
 Phylloscopus, 501
minuta, *Ardetta*, 252
 Limonites, 112
 Sterna, 179
 Tringa, 112
minutella, *Limonites*, 114
 Tringa, 114
minutus, *Larus*, 158
Mistle-Thrush, 453
mitratus, *Parus*, 526
modularis, *Accentor*, 477
mollissima, *Somateria*, 326
monedula, *Colinus*, 593
 Corvus, 593

- Montagu's Harrier, 386
montana, *Passer*, 569
 Perdix, 15
montanus, *Parus*, 525
Monticola cyaneus, 463
 saxatilis, 462
Montifringilla nivalis, 568
montifringilla, *Fringilla*, 559
 Moor-Hen, 40
morinella, *Egialitis*, 75
morinellus, *Eudromias*, 75
Motacilla alba, 533
 becma, 539
 borealis, 539
 cinerea, 539
 flava, 538
 lugubris, 531
 melanocephala, 539
 melanope, 535
 raii, 536
Motacillide, 531
 Mountain Partridge, 15
 Thrush, 462
muraria, *Tichodroma*, 531
Muscicapa atricapilla, 481
 griseola, 479
 parva, 483
Muscicapide, 479
musica, *Hylodichla*, 452
musicus, *Cygnus*, 265
 Turdus, 450
 Mute Swan, 270
mutus, *Lagopus*, 9

nævia, *Locustella*, 509
Nauclerus furcatus, 392
nebularius, *Glottis*, 103
 Needle-tailed Swift, 432
neglecta, *Estrelata*, 222
neglectus, *Anser*, 277
Neophron percnopterus, 396
Netta rufina, 309
Nettion crecca, 288
Nettion carolinense, 291
 crecca, 288
newtoni, *Parus*, 522
 Night-Heron, 250
 Nightingale, 463
 Nightjar, 426
 Egyptian, 428
 Red-necked, 428
nigricans, *Alce*, 201
 Branta, 282
nigricollis, *Podiceps*, 230
 Proctopus, 231
nigra, *Ciconia*, 259
 Hydrochelidon, 164
 Edemia, 331
nisoria, *Sylvia*, 492
nisus, *Accipiter*, 374
nivalis, *Montifringilla*, 568
 Plectrophanes, 556
nivicola, *Syrnium*, 410

noctua, *Athene*, 418
 Carine, 418
 Norfolk Plover, 53
 North American Garganey, 299
nubicus, *Lanius*, 578
Nucifraga caryocatactes, 597
Numenius arquata, 84
 borealis, 87
 phaeopus, 86
 Nutcracker, 597
 Nuthatch, 527
 Scandinavian, 528
Nyctala richardsoni, 411
 tengmalmi, 410
Nyctea Scandiaca, 414
Nycticorax griseus, 249
Nyroca affinis, 319
 bieri, 316
 ferina, 311
 ferruginea, 314
 fuligula, 319
 marila, 316
nyroca, *Aythya*, 314

obscurus, *Anthus*, 544
 Parus, 521
 Puffinus, 219
occidentalis, *Saxicola*, 474
oceanicus, *Oceanites*, 211
Oceanites oceanicus, 211
Oceanodroma cryptoleucura, 211
 leucorrhoa, 209
ochropus, *Helodromus*, 95
 Totanus, 95
Edemia fusca, 333
 nigra, 331
 perspicillata, 334
Edicnemide, 53
Edicnemus scolopax, 50
ananthe, *Saxicola*, 471
anas, *Columba*, 25
Estrelata brevipes, 221
 hesitata, 221
 neglecta, 222
olor, *Cygnus*, 270
Oreocichla varia, 461
orientalis, *Turtur*, 30
 Oriole, Golden, 581
 Indian, 583
Oriolide, 581
Oriolus galbula, 581
 kundu, 583
 Orphean Warbler, 493
orpheus, *Sylvia*, 493
 Ortolan, 555
Ortyx virginianus, 20
 Osprey, 397
ostralegus, *Hæmatopus*, 77
Otis tarda, 46
 tetrax, 49
Otocorys alpestris, 545
otus, *Asio*, 404
 Owl, Barn, 400

Owl, Eagle, 412
 Hawk, 416
 Little, 418
 Long-eared, 404
 Scops, 416
 Short-eared, 407
 Snowy, 414
 Tawny, 408
 Tengmalm's, 410
 Oyster-Catcher, 77
 Pacific Eider-Duck, 329
pacificus, *Colymbus*, 239
Pagophila eburnea, 160
 Pallas's Grey Shrike, 578
 Sand-Grouse, 21
 Willow-Wren, 502
palumbarius, *Astur*, 372
palumbus, *Columba*, 23
palustris, *Acrocephalus*, 507
Emberiza, 555
Parus, 523
Pandion haliaëtus, 397
Pandionidae, 397
Panuridae, 518
Panurus biarmicus, 518
paradoxus, *Syrnhaptēs*, 21
parasiticus, *Stercorarius*, 188
Paridae, 520
 Parrot-Crossbill, 571
 Partridge, 13
 Mountain, 15
 Red-legged, 16
Parus ater, 522
atricapillus, 524
borealis, 524
britannicus, 523
cæruleus, 520
cristatus, 525
dresseri, 524
kleinschmidti, 524
longirostris, 524
major, 521
mitratus, 526
montanus, 525
newtoni, 522
obscurus, 521
palustris, 523
rhenanus, 525
scoticus, 526
parva, *Muscicapa*, 483
Porzana, 35
Siphia, 483
Zapornia, 35
parvulus, *Troglodytes*, 516
 Passenger-Pigeon, 30
Passer domesticus, 568
montana, 569
Passeres, 450
Passeriformes, 450
Pastor roseus, 585
Pavoncella pugnax, 105
 Peewit, 65

pelagica, *Procellaria*, 206
Pelagodroma marina, 212
Pelicaniformes, 343
Pelidna alpina, 124
penelope, *Marca*, 291
percnopterus, *Neophron*, 396
Perdix cinerea, 13
hodgsoniae, 15
montana, 15
perdix, *Perdix*, 14
 Peregrine Falcon, 353
peregrinus, *Falco*, 353
Pernis apivora, 369
cristata, 370
perspicillata, *Edemia*, 334
 Petrel, Bulwer's, 222
 Cape, 215
 Capped, 221
 Collared, 221
 Fork-tailed, 209
 Frigate, 212
 Fulmar, 212
 Madeira, 211
 Schlegel's, 222
 Storm, 206
 Wilson's, 211
Petrocincla saxatilis, 462
petrophila, *Cyaneus*, 463
phæopus, *Numenius*, 86
Phalacrocoracidae, 344
Phalacrocorax carbo, 343
desmaresti, 348
fuscicollis, 348
graculus, 347
 Phalarope, Grey, 130
 Red-necked, 127
 Wilson's, 131
Phalaropinae, 127
Phalaropus fulicarius, 130
hyperboreus, 127
tricolor, 131
Phasianidae, 11
Phasianus colchicus, 11
torquatus, 12
versicolor, 12
 Pheasant, 11
 Japanese, 12
 Ring-necked, 12
philadelphia, *Larus*, 157
philippinus, *Merops*, 436
Philohela minor, 133
philomela, *Daulias*, 464
phæniceus, *Agelæus*, 583
Phanicurinae, 469
Phanicurus phanicurus, 469
titys, 471
phanicurus, *Phanicurus*, 469
Phoyx purpureus, 248
phragmitis, *Acrocephalus*, 504
Phylloscopus minor, 501
preregulus, 502
schwarzi, 503
sibilator, 498

- Phylloscopus superciliosus*, 502
tristis, 502
trochilus, 500
viridanus, 503
Pica rustica, 596
Picariae, 420
Picidae, 441
Picinae, 442
Picus martius, 447
viridis, 441
 Pied Flycatcher, 481
 Wagtail, 531
 Pigeon, Passenger, 30
 Wood, 23
pilaris, *Turdus*, 456
 Pine-Grosbeak, 574
 Pink-footed Goose, 277
Pinocola enucleator, 574
 Pipit, Meadow, 541
 Red-throated, 541
 Richard's, 542
 Rock, 544
 Tawny, 543
 Tree, 539
 Water, 544
pityopsittacus, *Loxia*, 571
 Pintail, 294
Platalea leucorodia, 261
platyrhyncha, *Limicola*, 126
 Tringa, 126
Plautus impennis, 194
Plectrophanes hyperboreus, 556
 lapponicus, 557
 nivalis, 556
Plectropterus gambensis, 283
Plegadis falcinellus, 259
 Plover, 61
 Egyptian, 54
 Grey, 65
 Kentish, 72
 Kill-deer, 74
 Lesser, 64
 Norfolk, 53
 Ringed, 69
plumipes, *Buteo*, 379
pluvialis, *Charadrius*, 61
Pluvianus aegyptiacus, 54
 Pochard, 311
 Red-crested, 309
 Scaup, 318
 White-eyed, 314
Podicipedidae, 222
Podiceps albipennis, 234
 auritus, 229
 cristatus, 222
 fluvialis, 232
 griseigena, 227
 nigricollis, 230
podicipes, *Podylymbus*, 234
Podylymbus podiceps, 234
 Polish Swan, 270
polyglotta, *Hypolaïs*, 504
pomatorhinus, *Stercorarius*, 183
pomeranus, *Lanius*, 580
Porphyrio, 42
porphyronotus, *Sturnus*, 584
Porzana bailloni, 37
 carolina, 39
 intermedia, 37
 maruetta, 38
 parva, 35
 pusilla, 37
pratensis, *Anthus*, 541
 Crex, 33
Pratincola mauros, 477
 rubetrus, 474
 rubicola, 476
pratincola, *Glaucala*, 56
 Pratincole, 56
 Black-winged, 57
Procellaria pelagica, 206
Procellariidae, 208
Proctopus nigricollis, 231
proregulus, *Phylloscopus*, 502
 Ptarmigan, 9
Pterocletes, 21
Pteroclidæ, 21
pubescens, *Dendrocopus*, 447
 Puffin, 204
Puffinidae, 215
Puffinus anglorum, 217
 assimilis, 219
 gravis, 215
 griseus, 220
 kuhli, 216
 obscurus, 219
 yelkonanus, 219
pugnax, *Pavoncella*, 105
 Purple Heron, 245
 Sandpiper, 120
 Water-Hen, 42
purpurea, *Ardea*, 245
purpureus, *Phox*, 245
pusilla, *Emberiza*, 554
 Porzana, 37
pusillus, *Ereunetes*, 92
Pygopodes, 222
pyrenaicus, *Cinclus*, 515
Pyrrhocorax alpinus, 600
 graculus, 599
Pyrrhula enucleator, 574
 erythrina, 570
 europæa, 572
 Quail, 18
 South African, 19
 Virginian, 20
Querquedula cinxia, 297
 crecca, 288
 discors, 299
 Radde's Warbler, 503
rari, *Motacilla*, 536
Ralliformes, 30
rallioides, *Ardeola*, 249

- Rallus aquaticus*, 30
 Raven, 586
 Razorbill, 189
Recurvirostra avocetta, 81
 Red-backed Shrike, 578
 Red-bellied Water-Ouzel, 515
 Red-breasted Fly-catcher, 483
 Godwit, 91
 Goose, 282
 Merganser, 340
 Snipe, 91
 Thrush, 457
 Red-crested Pochard, 309
 Red-footed Falcon, 362
 Red-legged Partridge, 16
 Red-necked Grebe, 227
 Nightjar, 428
 Phalarope, 127
 Red-rumped Swallow, 486
 Red-throated Diver, 240
 Pipit, 541
 Red-winged Starling, 583
 Redbreast, 465
 Redpoll, 566
 Lesser, 567
 Redshank, 99
 Spotted, 101
 Redstart, 469
 Black, 471
 Redwing, 454
 Reed-Bunting, 554
 Large-billed, 555
 Reed-Pheasant, 518
 Reed-Warbler, 506
 Greater, 506
 Reed-Wren, 506
regalis, *Milvus*, 389
Regulidae, 511
Regulinae, 511
Regulus anglorum, 513
 calendula, 513
 cristatus, 511
 ignicapillus, 513
regulus, *Æsalon*, 363
rhenanus, *Parus*, 525
Rhodostethia rosea, 160
Rhyacophilus glareola, 97
richardi, *Anthus*, 542
 Richard's Pipit, 542
richardsoni, *Nyctala*, 411
 Richardson's Skua, 185
ridibundus, *Larus*, 155
 Ring-Dove, 23
 Ring-necked Pheasant, 12
 Ring-Ouzel, 459
 Ringed Guillemot, 198
 Plover, 69
 Little, 72
ringvia, *Uria*, 198
riparia, *Clivicola*, 486
 Cotile, 486
Rissa brevirostris, 162
 iridactyla, 162
 River-Tern, Indian, 171
 Robin, 465
 Rock-Dove, 27
 Rock-Partridge, 17
 Rock-Pipit, 544
 Scandinavian, 545
 Rock Ptarmigan, 10
 Rock-Thrush, 462
 Roller, 432
 Abyssinian, 434
 Indian, 434
 Rook, 591
 Rose-Finch, 570
rosea, *Acredula*, 527
 Rhodostethia, 160
 Roseate Tern, 175
roseus, *Pastor*, 585
 Ross's Gull, 160
rostrata, *Cannabina*, 567
 Linota, 567
 Rosy Starling, 585
 Rotche, 201
 Rough-legged Buzzard, 380
rubecula, *Erithacus*, 465
rubetrus, *Pratincola*, 474
rubicola, *Pratincola*, 476
rubirostris, *Anser*, 273
 Ruby-crest Wren, 513
 Ruby-throat, 469
 Ruddy Sheldrake, 306
rufa, *Caccabis*, 16
rufescens, *Acanthis*, 567
 Cannabina, 567
 Linaria, 567
 Linota, 567
 Ruff, 105
ruficollis, *Branta*, 282
 Caprimulgus, 428
rufina, *Fuligula*, 310
 Netta, 309
rufitergum, *Garrulus*, 596
 Rufous Turtle-Dove, 30
 Warbler, 498
rufula, *Hirundo*, 486
rupestris, *Anthus*, 545¹
 Columba, 27
 Lagopus, 10
russatus, *Bubulcus*, 248
 Rustic Bunting, 555
rustica, *Emberiza*, 555
 Hirundo, 483
 Pica, 596
rusticola, *Scolopax*, 131
rusticolus, *Falco*, 360
 Rusty Grackle, 583
Ruticilla phanicurus, 469
 titys, 471
Ruticillinae, 463
rutila, *Casarca*, 306
 Tadorna, 360
sabinei, *Xema*, 159
 Sabine's Gull, 159

- Sabine's Snipe, 136
 Saker, 359
 Sand-Grouse, Pallas's, 21
 Sand-Martin, 486
 Sand-Plover, Caspian, 74
 Sanderling, 110
 Sandpiper, 93
 Baird's, 118
 Bartrami's, 109
 Bonaparte's, 118
 Broad-billed, 126
 Buff-breasted, 109
 Green, 95
 Half-webbed, 92
 Marsh, 102
 Purple, 120
 Sharp-tailed, 116
 Solitary, 96
 Spotted, 94
 Wood, 97
 Sandwich Tern, 176
 Sardinian Warbler, 497
saundersi, *Sterna*, 179
 Savi's Warbler, 510
saxatilis, *Caccabis*, 17
Monticola, 462
Petrocincla, 462
Saxicola caterinae, 474
deserti, 474
isabellinus, 473
leucorrhous, 473
occidentalis, 474
ananthe, 471
stapazina, 473
Saxicolinae, 472
scandiaca, *Nyctea*, 414
 Scandinavian Nuthatch, 528
 Rock-Pipit, 545
 Scaup-Duck, 316
 American, 319
 Tufted, 319
 Scaup-Pochard, 318
 Scavenger-Vulture, 396
 Schlegel's Petrel, 222
schanius, *Emberiza*, 554
schwarzii, *Herbivocula*, 503
Phylloscopus, 503
 Sclavonian Grebe, 229
Scolecophagus ferrugineus, 583
Scolopacinae, 131
Scolopax rusticola, 131
Scops asio, 418
giu, 416
 Scops Owl, 416
 American, 418
 Scoter, 331
 Surf, 334
 Velvet, 333
scotica, *Alauda*, 547
Loxia, 572
scoticus, *Lagopus*, 7
Parus, 526
 Sea-Parrot, 204
 Sea-Pie, 77
 Sedge-Bird, 504
 Sedge-Warbler, 504
seena, *Sterna*, 171
semipalmatus, *Macrorhampus*, 91
septentrionalis, *Colymbus*, 240
 Serin, 569
Serinus hortulanus, 569
serrator, *Merganser*, 340
 Mergus, 340
serrirostris, *Anser*, 277
 Shag, 347
 Indian, 348
 Sharp-tailed Sandpiper, 116
 Shearwater, Dusky, 219
 Great, 215
 Kuhl's, 216
 Levantine, 219
 Manx, 217
 Sooty, 220
 Sheldrake, 303
 Ruddy, 306
 Shore-Lark, 545
 Short-eared Owl, 407
 Short-toed Lark, 548
 Shoveller, 300
 Shrike, Grey, 577
 Masked, 578
 Red-backed, 578
 Wood, 580
Sialia sialis, 477
sialis, *Sialia*, 477
 Siberian Chiff-Chaff, 502
sibilator, *Phylloscopus*, 498
sibirica, *Alauda*, 546
 Geocichla, 461
 Melanocorypha, 546
 Turdus, 461
sibiricus, *Lanius*, 578
sinensis, *Sterna*, 179
Siphia parva, 483
 Siskin, 562
Sitta britannica, 529
 caesia, 527
 europaea, 528
Sittida, 527
 Skua, Great, 181
 Long-tailed, 188
 Richardson's, 185
 Temminck's, 183
 Smew, 335
 Snipe, 135
 Great, 138
 Jack, 139
 Red-breasted, 91
 Sabine's, 136
 Summer, 93
 Wilson's, 139
 Snipe-billed Godwit, 91
 Snow-Bunting, 556
 Snow-Finch, 568
 Snow-Goose, 279
 Snowy Owl, 414

- solitarius, Helodromus*, 96
 - Totanus*, 96
- Solitary Sandpiper, 96
- Somateria dresseri*, 328
 - mollissima*, 326
 - spectabilis*, 329
 - v.-nigrum*, 329
- Sooty Shearwater, 220
- Tern, 179
 - Lesser, 179
- South African Quail, 19
- Spanish Yaffle, 443
- Sparrow, 568
 - Tree, 569
- Sparrow-Hawk, 374
- Spatula clypeata*, 300
- spectabilis, Erionetta*, 331
 - Somateria*, 329
- spinus, Carduelis*, 562
 - Chrysomitris*, 562
- spipoletta, Anthus*, 544
- Spoonbill, 261
- Spotted Crane, 38
 - Eagle, 396
 - Fly-catcher, 479
 - Redshank, 101
 - Sandpiper, 94
 - Woodpecker, Great, 444
 - Lesser, 446
 - Middle, 447
- Squacco Heron, 249
- Squatarola helvetica*, 64
- stagnatilis, Totanus*, 102
- stapazina, Saxicola*, 473
- Starling, 583
 - Black, 585
 - Meadow, 583
 - Rosy, 585
- Steganopodes*, 343
- Steganopus tricolor*, 131
- stellaris, Botaurus*, 254
- Stercorariidæ*, 181
- Stercorarius catarrhactes*, 182
 - crepidatus*, 185
 - parasiticus*, 188
 - pomatorhinus*, 183
- Sterna anæstheta*, 179
 - anglica*, 169
 - cantiaca*, 176
 - caspia*, 168
 - dougalli*, 175
 - fluviatilis*, 171
 - fuliginosa*, 179
 - macrura*, 173
 - minuta*, 179
 - saundersi*, 179
 - seena*, 171
 - sinensis*, 179
- Sterninæ*, 164
- Stilt, 80
- Stint, 112
 - American, 114
 - Temminck's, 114
- Stock-Dove, 25
- Stone-Curlew, 50
- Stonechat, 476
- Stork, 257
 - Black, 259
- Storm-Petrel, 206
 - streperus, Acrocephalus*, 506
 - Chaulelasmus*, 286
- Streptilas interpres*, 58
 - Striges*, 400
- Strigidæ*, 402
- Strix aluco*, 408
 - flammea*, 400
- Sturnella magna*, 583
- Sturnidæ*, 583
- Sturnus humei*, 584
 - porphyronotus*, 584
 - unicolor*, 585
 - vulgaris*, 583
- subalpina, Sylvia*, 493
- Sub-Alpine Warbler, 493
- subarquata, Tringa*, 122
- subarquatus, Ancylochilus*, 122
- subbuteo, Falco*, 357
- subruficollis, Tringites*, 109
- suecica, Cyanecula*, 467
- Sula bassana*, 349
- Sulidæ*, 349
- Summer-Snipe, 93
 - American, 94
- superbus, Erithacus*, 467
- superciliosus, Phylloscopus*, 502
- Surf-Scoter, 334
- surinamensis, Hydrochelidon*, 165
- Surnia ulula*, 416
 - deliata*, 416
 - funerea*, 416
- Swallow, 483
 - Red-rumped, 486
- Swallow-tailed Kite, 392
- Swan, Bewick's, 269
 - Coscoroba, 267
 - Mute, 270
 - Polish, 270
 - Trumpeter, 270
 - Whooper, 265
- Swift, 428
 - Alpina, 431
 - Needle-tailed, 432
- Sylvia atricapilla*, 493
 - cinerea*, 489
 - curruca*, 491
 - hortensis*, 495
 - jerdoni*, 493
 - melanocephala*, 497
 - nisoria*, 492
 - orpheus*, 493
 - subalpina*, 493
 - undata*, 496
- Sylviidæ*, 489
- Syrnium aluco*, 408
 - nivicola*, 410
- Syrnhaptes paradoxus*, 21

- Tachybaptus fluxuatis*, 234
Tadorna cornuta, 303
 rutila, 306
tarda, *Otis*, 46
 Tawny Owl, 408
 Pipit, 543
 Teal, 288
 Blue-winged, 299
temmincki, *Limonites*, 114
 Tringa, 114
 Temminck's Skua, 183
 Stint, 114
tengmalmi, *Nyctala*, 410
 Tengmalm's Owl, 410
 Tern, Arctic, 173
 Black, 164
 Caspian, 168
 Common, 171
 Gull-billed, 169
 Lesser Sooty, 179
 Little, 179
 Roseate, 175
 Sandwich, 176
 Sooty, 179
 White-whiskered, 166
 White-winged, 167
 Ternlet, Black-shafted, 179
 White-shafted, 179
Tetrao tetrax, 4
 urogallus, 1
Tetraonide, 2
Tetrax campestris, 49
tetrax, *Otis*, 49
tetrax, *Lyrurus*, 4
 Tetrao, 4
 Thick-knee, 50
 Thrush, 450
 Black-throated, 461
 Blue, 463
 Dusky, 462
 Ground, 461
 Mistle, 453
 Mountain, 462
 Red-breasted, 457
 Rock, 462
 White's, 461
Tichodroma muraria, 531
Tinnunculus alaudarius, 366
 cenchris, 368
tinnunculus, *Cerchneis*, 366
 Fulco, 367
 Titlark, 541
 Titmouse, Bearded, 518
 Blue, 520
 Coal, 522
 Crested, 525
 Great, 521
 Long-tailed, 526
 Marsh, 523
 Willow, 524
titys, *Phanieurns*, 471
 Ruticilla, 471
todar, *Alca*, 189
torquata, *Merula*, 459
torquatus, *Histrionicus*, 326
 Phasianus, 12
 Turdus, 459
torquilla, *Lynx*, 448
Totantina, 93
Totanus calidris, 99
 flavipes, 103
 fuscus, 101
 glareola, 97
 glottis, 103
 hypoleucus, 93
 macularius, 94
 melanoleucus, 103
 ochropus, 95
 solitarius, 96
 stagnatilis, 102
 Tree-Creeper, 529
 Tree-Pipit, 539
 Tree-Sparrow, 569
 Tree-Warbler, 503
tricolor, *Phalaropus*, 131
 Steganopus, 131
tridactyla, *Rissa*, 162
Tringa acuminata, 118
 alpina, 123
 bairdi, 118
 canutus, 118
 crassirostris, 118
 fuscicollis, 118
 maculata, 116
 maritima, 120
 minuta, 112
 minutella, 114
 platyrhyncha, 126
 subarquata, 122
 temmincki, 114
Tringites subruficollis, 109
Tringoides hypoleucus, 93
 macularius, 94
tristis, *Phylloscopus*, 502
trivialis, *Anthus*, 539
trochilus, *Phylloscopus*, 500
Troglodytes parvulus, 516
 hirtensis, 517
troglodytes, *Anorthura*, 516
troile, *Uria*, 195
 Trumpeter Swan, 270
Trypanocorax frugilegus, 591
Tubinares, 206
 Tufted Duck, 319
turcomanus, *Bubo*, 413
Turdide, 450
Turdina, 451
turdoides, *Acrocephalus*, 506
Turdus atrigularis, 461
 castaneus, 460
 dauma, 462
 dubius, 462
 iliacus, 454
 merula, 457
 migratorius, 457
 musicus, 450

- Turdus pilaris*, 456
sibirica, 461
torquatus, 459
varius, 461
viscivorus, 453
Turnstone, 58
Turtle-Dove, 29
 Rufous, 30
Turtur communis, 29
orientalis, 30
Twite, 565

ulula, *Sturnia*, 416
undata, *Sylvia*, 496
undatus, *Melizophilus*, 496
unicolor, *Sturnus*, 585
Upupa epops, 439
 indica, 440
Upupidae, 439
urbica, *Chelidon*, 488
Uria hruennichi, 198
 californica, 196
 grylle, 199
 mandti, 200
 ringvia, 198
 troile, 195
urogallus, *Tetrao*, 1

vagans, *Ægithalus*, 527
Vanellus vulgaris, 66
varia, *Oreocichla*, 461
varius, *Turdus*, 461
Velvet-Scoter, 333
versicolor, *Phasianus*, 12
vespertinus, *Erythropus*, 362
villosus, *Dendrocopus*, 447
virescens, *Butorides*, 252
Virginian Quail, 20
virginianus, *Ortyx*, 20
viridanus, *Acanthopneuste*, 503
 Phylloscopus, 503
viridis, *Cecinus*, 441
 Picus, 441
viscivorus, *Turdus*, 453
v-nigrum, *Somateria*, 329
vocifera, *Ægialitis*, 74
Vulture, Griffon, 396
 Scavenger, 396
Vulturidae, 396

Wagtail, Ashy-headed, 539
 Black-headed, 539
 Blue-headed, 538
 Grey, 535
 Grey-headed, 539
 Pied, 531
 White, 533
 Yellow, 536
Wall-Creeper, 531
Warbler, Barred, 492
 Cetti's, 510
 Dartford, 496
 Garden, 495
 Warbler, Grasshopper, 509
 Grey-backed, 498
 Marsh, 507
 Orphean, 493
 Radde's, 503
 Reed, 506
 Rufous, 498
 Sardinian, 497
 Savi's, 510
 Sedge, 504
 Sub-Alpine, 493
 Tree, 503
 Water, 508
 Willow, 500
 Wood, 499
 Yellow-browed, 502
Water-Hen, 40
 Purple, 42
Water-Ouzel, 513
 Black-bellied, 515
 Black-breasted, 515
 Red-bellied, 515
Water-Pipit, 544
Water-Rail, 30
Water-Warbler, 508
Waxwing, 581
Wheatear, 471
 Black-eared, 473
 Black-throated, 474
 Desert, 474
 Isabelline, 473
Whimbrel, 86
Whinchat, 474
White-backed Woodpecker, 447
White-billed Diver, 236
White Crossbill, 572
White-eyed Duck, 314
White-eyed Pochard, 314
White-fronted Goose, 274
White-shafted Ternlet, 179
White-spotted Bluethroat, 468
White-tailed Eagle, 392
White-throated Bunting, 558
White Wagtail, 533
White-whiskered Tern, 166
White-winged Gull, Greater, 147
 Lesser, 149
White-winged Lark, 546
White-winged Tern, 167
White's Thrush, 461
Whitethroat, 489
 Lesser, 491
Whooper Swan, 265
Wigeon, 291
 American, 294
Wild Duck, 283
Willow-Grouse, 7
Willow Titmouse, 524
Willow-Warbler, 500
Willow-Wren, 500
 Blyth's, 503
 Pallas's, 502
wilsoni, *Gallinago*, 139

- wilsonianus*, *Asio*, 405
 Wilson's Petrel, 211
 Phalarope, 131
 Snipe, 139
wolfi, *Cyanecula*, 468
 Wood-Lark, 548
 Wood-Pigeon, 23
 Wood-Sandpiper, 97
 Wood-Shrike, 580
 Wood-Warbler, 499
 Wood-Wren, 498
 Woodcock, 131
 Woodchat, 580
 Woodpecker, Downy, 447
 Golden-winged, 447
 Great Black, 447
 Great Spotted, 444
 Green, 441
 Hairy, 447
 Lesser Spotted, 446
 Middle Spotted, 447
 White-backed, 447
 Wren, 516
 Fire-crested, 513
 Golden-crested, 511
 Reed, 506
 Ruby-crest, 513
 Willow, 500
 Wood, 498
 Wryneck, 448

Xema sabinei, 159

 Yaffle, 441
 Spanish, 443
yelkonanus, *Puffinus*, 219
 Yellow-billed Cuckoo, 425
 Yellow-breasted Bunting, 553
 Yellow-browed Warbler, 502
 Yellow Hammer, 551
 Wagtail, 536
 Yellowshank, Greater, 103
 Lesser, 103
yelloniensis, *Alauda*, 548

Zapornia parva, 35
Zonotrichia albicollis, 558

THE END

ROWLAND WARD, LIMITED,

NATURALISTS

By Special Appointment to His Majesty the King
and H.R.H. The Prince of Wales,

"THE JUNGLE," 167 PICCADILLY, LONDON, W.

TELEPHONE—3644, GERRARD; 71, MAYFAIR.

TELEGRAPHIC ADDRESS—"JUNGLE, LONDON."

OSTEOLOGISTS

Practical and Artistic Taxidermists, Designers of Trophies of Natural History, Preservers and Adapters of all Specimens of Animal Life. Natural Features of Animals adapted in Original Designs for Decorative Purposes and everyday uses. Furriers and Plumassiers and Collectors in Natural History. Booksellers and Publishers.

NOTICE.—Mr. Rowland Ward is the only member left in the profession of the Ward Family, long unrivalled for their accumulated experience and their skill in Practical Taxidermy, especially in its artistic department.

Medals and Diplomas of Honour for Artistic Work:

London International Exhibition, 1862.
Paris International Exhibition, 1862.
Vienna International Exhibition, 1873.
London International Fisheries, 1883.
Calcutta International Exhibition, 1883-84.
London International Health Exhibition, 1884.

London Colonial and Indian Exhibition, 1886.
The Anglo-Danish Exhibition, South Kensington, 1888.
The Royal Military Exhibition, Army Medical Department, 1890.

Entomological Department



FOLDING POCKET AND UMBRELLA NETS

- Polished Cabinets**, with various divisions for Eggs, 4 drawers, 12s.; 6 drawers, 16s. 6d.; 8 drawers, 30s.
- „ „ with Pillars or Glass Panel Door, to lock up, 4 drawers, 18s.; 6 drawers, 23s.; 8 drawers, 37s.; 10 drawers, £3 : 3 : 9.
- „ „ with Cork and Glass for Butterflies, 4 drawers, 13s. 6d.; 6 drawers, 17s. 6d.; 8 drawers, 33s.
- „ „ with Pillars or Glass Panel Door, to lock up, 4 drawers, 18s. 6d.; 6 drawers, 23s. 6d.; 8 drawers, £2.
- „ „ superior air-tight Glass Frames and Camphor Cells, 12 drawers (extra large), £6.
- Books on Butterflies, Moths, Birds' Eggs, Coloured Plates, 3s. 6d. each.
- Cabinets for Minerals, Shells, Plants, Coins, Insects.
- Plain Nets, complete, for Butterflies, 1s. 3d., 2s., and 2s. 6d.; ditto, to fold for pocket, 4s. 6d. Pear-shape Nets, 7s. 6d., 8s. 6d., 9s. 6d., 10s. 6d., suitable for collecting abroad. Patent Walking-Stick Net, 20s.
- Best make and fitting Pine Store Boxes, 8 by 6, 2s.; 10 by 8, 2s. 6d.; 14 by 10, 4s.; 16 by 11, 5s.; 18 by 12, 6s. Pocket Boxes (wood), 6d., 1s., and 1s. 6d. Best Zinc, for damping, 1s. 6d., 2s., 3s. Zinc Killing Boxes, 9d., 1s., and 1s. 6d. Zinc Relaxing Box, 2s. The American Moth Trap, complete, with lamp, 32s. and 40s.
- Steel Forceps, 2s. Net Forceps, 2s. 6d. (for Wasps, Bees, etc.).
- Mixed Pins, 1s. per box, 1s. 6d. per oz.
- Larva Breeding Cages, 2s. 6d., 4s., and 5s.
- Best Compo Cork, 7 by 3½, 1s. 6d. per doz.; ditto, 11 by 4½, 2s. 8d. per doz. Label Pins, 1s.
- Best Chip Boxes, 8d. per 4 doz., nested; Glass Top ditto, very strong, 2s. 6d. per doz. (3 sizes). Brass Chloroform Bottles, 2s. 6d. each.
- Labels—Eggs, 6d.; Butterflies, 3d.
- Pupa and Plant Diggers, in leather case for pocket, 2s. 6d. and 3s. 6d.
- Setting Boards, 6d. to 3s. Setting Houses, full of setting boards and pin drawer, 9s. 6d., 11s. 6d., 14s.
- Climbing Irons, 5s. 6d. per pair, complete. Pink Wool, 6d. sheet. Egg Drills, 3d., 6d., 9d., and 1s. Blow Pipes, metal, 4d., 6d., 9d., 1s. Book on Egg Collecting, 3s. 6d.
- Dr. Knaggs' "The Lepidopterist's Guide for the use of the Young Collector," 1s.

***Outfits for all Parts of
the World.***

***Illustrated Catalogue
Free.***

LONDON : ROWLAND WARD, LIMITED

"THE JUNGLE," 167 PICCADILLY

BIRD STUFFING AND THE STUFFING OF SMALL ANIMALS

In the simplest and most inexpensive way are undertaken by

ROWLAND WARD, LIMITED,

with the same rigid attention to the best artistic result as they bestow on the most elaborated and costly designs and combinations of rare specimens.



TAXIDERMINE

(TRADE MARK)

Is a non-poisonous preparation invented by Mr. ROWLAND WARD for the preservation of the skins of animals, whether Pachyderms, Great Mammalia, or Reptiles, as well as of small Animals and Birds, even to the most delicate and tender. It is of easy application, not dangerous to the operator in any way, and is perfectly effective.



SKULLS AND SKELETONS

SUPPLIED FOR MUSEUMS AND PRIVATE COLLECTIONS



OSTEOLOGICAL WORK

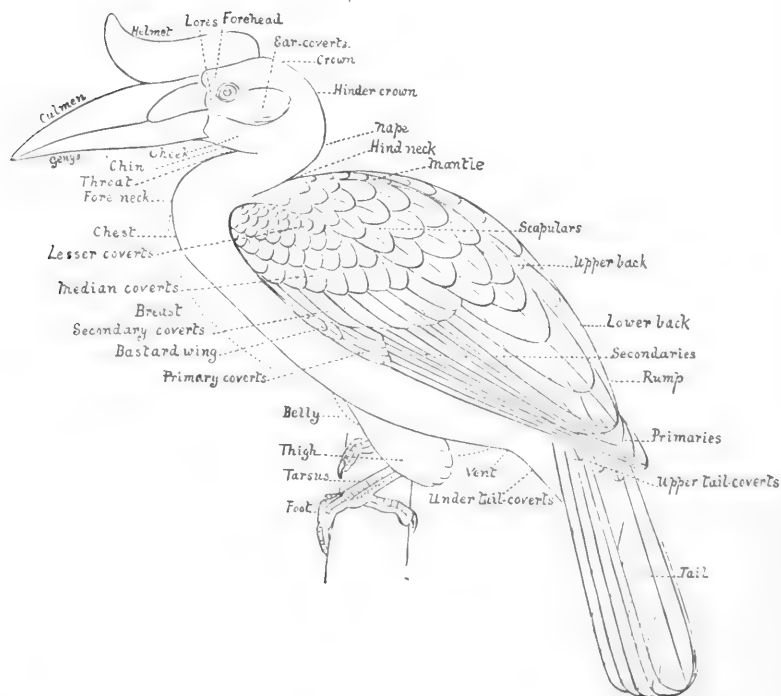
OF ALL DESCRIPTIONS

LONDON: ROWLAND WARD, LIMITED

“THE JUNGLE,” 167 PICCADILLY

THE SPORTSMAN'S BRITISH BIRD BOOK

By R. LYDEKKER



CONTAINING OVER 300 ILLUSTRATIONS

LONDON

ROWLAND WARD, LTD.

THE JUNGLE, 167 PICCADILLY

ROWLAND WARD'S BOOKS FOR SPORTSMEN

The Sportsman's Handbook to Practical Collecting, Preserving, and Artistic Setting Up of Trophies and Specimens. With a Synoptical Guide to the Hunting Grounds of the World. By ROWLAND WARD, F.Z.S. Price 3s. 6d. net.

Records of Big Game. With their Distribution, Characteristics, Dimensions, Weights, and Horn and Tusk Measurements. Fifth Edition. By ROWLAND WARD, F.Z.S. With 249 Illustrations. Price 30s. net.

The Deer of all Lands. By R. LYDEKKER. Illustrated by Twenty-four Hand-coloured Plates and a number of Photographic Reproductions of Living Deer. Price £5 : 5s. net.

Wild Oxen, Sheep, and Goats of all Lands. By R. LYDEKKER. Companion volume to "Deer of all Lands." Illustrated by Twenty-seven Hand-coloured Plates and other Illustrations. Price £5 : 5s. net.

The Great and Small Game of India, Burma, and Tibet. By R. LYDEKKER. With Nine Hand-coloured Plates and other Illustrations. Out of print.

The Great and Small Game of Europe, Western and Northern Asia, and America. By R. LYDEKKER. With Eight Hand-coloured Plates and other Illustrations. Price £4 : 4s. net.

The Great and Small Game of Africa. With Fifteen Hand-coloured Plates of Heads and Fifty-seven other Illustrations. Price £5 : 5s. net.

Sport in Somaliland. By COUNT JOSEPH POTOCKI. With a Coloured Frontispiece, Fifty-eight Coloured Illustrations, Eighteen Page Photogravures, Seven Text Figures, and Map. Price £4 : 4s. net.

Travel and Adventure in South-East Africa. By F. C. SELOUS. With numerous Illustrations and Map. Price 25s. net.

Sunshine and Storm in Rhodesia. By F. C. SELOUS. Fully Illustrated, with Map. Price 10s. 6d. net.

Elephant Hunting in East Equatorial Africa. By A. H. NEUMANN. With Illustrations and Map. Price 21s. net.

Seventeen Trips through Somaliland and a Visit to Abyssinia. With Supplementary Preface on the "Mad Mullah" Risings. By Lt.-Col. H. G. C. SWAYNE, R.E. Third Edition. With Illustrations and Maps. Price 7s. 6d. net.

Through the Highlands of Siberia. By Lt.-Col. H. G. C. SWAYNE, R.E. With Sixty Illustrations and Map. Price 12s. 6d. net.

Sport in the Highlands of Kashmir. Being a Narrative of a Trip in Baltistan and Ladak. By H. Z. DARRAH. With Illustrations and Map. Price 21s. net.

Rowland Ward's Books for Sportsmen—

Continued.

- Hunting Trips in the Caucasus.** By E. DEMIDOFF (Prince San Donato). With Ninety-six Illustrations and Map. Price 21s. net.
- After Wild Sheep in the Altai and Mongolia.** By E. DEMIDOFF (Prince San Donato). With Eighty-two Illustrations and Map. Price 21s. net.
- A Shooting Trip to Kamchatka.** By E. DEMIDOFF (Prince San Donato). With 113 Illustrations, Five Photogravures, and Two Maps. Price 21s. net.
- Sport in East Central Africa.** Being an Account of Hunting Trips in Districts of East Central Africa. By F. V. KIRBY, F.Z.S. With Illustrations. Price 8s. 6d. net.
- The English Angler in Florida.** With some Descriptive Notes of the Game, Animals, and Birds. By ROWLAND WARD, F.Z.S. With numerous Illustrations. Price 7s. 6d. net.
- A Sporting Trip through Abyssinia.** With a Description of the Game, from Elephant to Ibex. By P. H. G. POWELL-COTTON, F.Z.S., F.R.G.S. With Ninety-two Illustrations and Map. Price 21s. net.
- Nature Portraits:** Studies with Pen and Camera of Wild Birds, Animals, Fish, and Insects. Text by the Editor of "Country Life in America." With Fifteen Large Plates, and many Illustrations by the best Nature Photographers. Price 21s. net.
- American Animals.** A Popular Guide to the Mammals of North America, North of Mexico. By W. STONE and W. E. CRAM. With numerous Illustrations. Price 12s. 6d. net.
- Camera Shots at Big Game.** By A. G. WALLIHAN. With an Introduction by THEODORE ROOSEVELT. Price 30s. net.
- The Geese of Europe and Asia.** Being the Description of most of those inhabiting the Old World. By SERGIUS ALPHERAKY, Cor. M. Zoological Museum of the Imperial Academy of Science, St. Petersburg. With Twenty-five Coloured Plates. Quarto. Price £3 : 3s. net.
- Big Game Shooting in Alaska.** By Captain R. E. RADCLYFFE (Reserve of Officers, late 1st Life Guards). With Forty-five Illustrations from Photographs, and Map. Imperial 8vo. Price 21s. net.
- Elephant and Seladang Hunting in the Federated Malay States.** By THEODORE R. HUBBACK. With Illustrations. Price 10s. 6d. net.
- The Game Animals of India, Burma, Malaya, and Tibet.** Being a New and Revised Edition of "The Great and Small Game of India, Burma, and Tibet." By R. LYDEKKER. With Sixty-eight Illustrations. Demy 8vo. Price 18s. net.
- A Trip to Pilawin.** The Deer-Park of Count Joseph Potocki in Volhynia, Russia. By R. LYDEKKER. With Illustrations. Price 6s. net.
- The Game Animals of Africa.** Being a Revised Edition of "The Great and Small Game of Africa." With Fifteen full-page and Ninety-three text figures. Small crown 4to. Price 25s. net.

LONDON : ROWLAND WARD, LIMITED

"THE JUNGLE," 167 PICCADILLY



COPYRIGHT

THE COLONIAL AND INDIAN EXHIBITION, 1886

THE JUNGLE

"But everything else here is likely to be forgotten in the presence of the wonderful jungle scene which Mr. Rowland Ward has constructed. . . . This will certainly be the first of the many attractions to which visitors will turn. . . . On the right we have a trophy the most prominent feature of which is a tiger hunt. . . . Adjoining this are trophies designed to represent generally the Fauna and Flora of India, by representative animals and birds, picturesquely grouped in illustration of their life-habits."—*Times*.

"The visitors . . . were lost in admiration of Mr. Rowland Ward's masterly designs, modellings, and general arrangement. . . . The deep grass jungle is occupied necessarily by many creatures which would not in their native wilds be found in such close companionship. . . . The scene is rendered with true magic power."—*Daily News*.

"These numerous beasts . . . seem to illustrate the Fauna of India in a most vivid manner, and are very artistically prepared and arranged. . . . One of the leading attractions."—*Morning Post*.

"Fitted with the most perfect completeness. . . . The whole scene depicted is so life-like that one is startled by its vivid realism. . . . The jungle alone is almost enough to make an exhibition."—*Daily Chronicle*.

"Mr. Rowland Ward, of Piccadilly, provides the most attractive feature of the exhibition, in the form of a series of picturesque trophies representing India, Ceylon, South Africa, Canada and Queensland."—*Sportsman*.

"Perhaps the first place must be accorded to the jungle scene of Mr. Rowland Ward, which stands at the head of the Indian Courts, one of the favourite sights of the vast show."—*Daily Telegraph*.

GREAT GAME SHOOTING AND PRACTICAL TAXIDERMISTRY

Post 8vo, bound in leather. Price 3s. 6d. net.

THE SPORTSMAN'S HANDBOOK

TO PRACTICAL COLLECTING, PRESERVING, AND
ARTISTIC SETTING-UP OF TROPHIES AND SPECIMENS

WITH MANY ILLUSTRATIONS

BY

ROWLAND WARD, F.Z.S.



“With this in his portmanteau, no one fond of shooting and collecting need any longer lament his inability to preserve his trophies, since the directions given for skinning and preserving animals of all kinds are extremely clear and simple, and rendered all the more intelligible by the wood engravings by which they are accompanied. Quadrupeds, birds, fishes, reptiles, and insects are all dealt with in turns, and directions given not merely for skinning them, but also for mounting them, if desired, a year or two (it may be) after they have been procured.”—*Field*.

ROWLAND WARD, LIMITED

“THE JUNGLE,” 167 PICCADILLY

LONDON





Lydcher, Rd Th
59.82(42)
MAR 8 1924

AMNH LIBRARY



100111439